The Newspaper of Information Systems Management
February 21, 1994, Vol. 28, No. 8, 118 Pages, $6/Copy, $48/Year

COMPUTERWORLD

SNMP upgrade draws praise but little action

Net management vendors slow to support protocol in wares

By Lynda Radosevich and Elisabeth Horwitt

■ Enhancements to the SNMP standard could help users ease scalability, performance and security problems inherent in current SNMP network management systems. However, while key industry players voice support for the enhanced protocol, most are only slowly committing to specifics in their network management products.

Simple Network Management Protocol is a network monitoring and control protocol used by virtually all major network management platforms as well as hub and router vendors.

SNMP Version 2 can speed up performance by sending information from managed devices, such as hubs and routers, in bulk rather than in small pieces, as current SNMP systems do. It also solves security problems by adding authentication and encryption to passwords.

"We're looking for that added security as we start hooking up to the Internet," said Ken Shirane, a systems programmer at Rocky Mountain Health Care in Denver. For instance, SNMP 2 security could help keep unauthorized Internet users from accessing network management systems and shutting down a hub, which is a possibility now, he said.

Furthermore, SNMP 2 allows for distributed

SNMP, *page 8*

Users see Notes net potential

AT&T/Lotus server deal could greatly expand groupware applications

By Lynda Radosevich

The reported negotiations between Lotus Development Corp. and AT&T for a national Notes public server network could be a boon for corporations looking to conduct business-to-business electronic discussions, industry observers said. The pending deal should help businesses extend their own Notes-based electronic services to small businesses and individuals.

Industry sources said last week that Lotus and AT&T are discussing a deal to provide Notes on a national network and to offer a special "Notes lite" client that removes the complex programming features from the current version of Notes. The service could be available in June, according to sources close to the deal.

For non-Notes users

The client software would allow Notes sites to distribute a low-cost, customized, read/write-only version of the Notes client for use by non-Notes sites.

Moreover, the public server would save companies the pain of setting up their own point-to-point connections for private intercompany discussions, allowing them to broadcast information as is possible on various on-line services.

While exact terms of the Lotus/AT&T arrangement are still being negotiated, Furman Selz, Inc., a research firm in New York, published a report last week stating that Lotus will receive 15% of all revenue generated from the AT&T service.

Lotus and AT&T would not comment on the negotiations.

Several industry observers questioned the royalty figure, saying it seemed unlikely. "I am not

Notes, *page 7*

Word of the impending deal drove Lotus' stock up 13¾ points last week, to close at 69 on Friday.

Host users passing on license reforms

By Thomas Hoffman

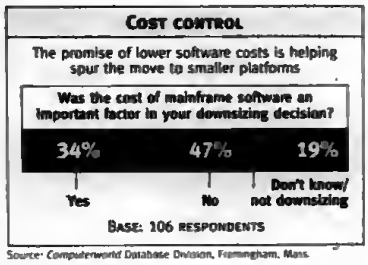
User outrage over the rigidity and high costs of host systems software has driven many vendors to abandon traditional tiered-based schemes. But it appears that only a few users have taken the bait.

Users at shops that have not abandoned the tiered pricing model claim they are wary of locking into expensive, long-term licensing pacts for mainframe software that may be nearly obsolete. However, those who have adopted the new licensing schemes say they have fewer administrative hassles, improved budget predictability, more flexible software use and occasional cost savings.

Some information systems executives said they have not seen the cost justification to move to the new pricing schemes. Still other users said they are keeping a keen eye on IBM's plans to introduce usage-based licensing, the status of which remains muddled.

"We don't see how

Licensing, *page 14*



Source: Computerworld Database Division, Framingham, Mass.

iNSiDE: HiRE EDUCATiON

Buyer beware: Executive education programs can cost up to $25,000, but what do IS managers really get for their time and money? Some learn how to lead; others get little more than names for their Rolodex.

—SEE MANAGEMENT, PAGE 73

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Reinventing government

Procurement horror stories draw Feds' scrutiny

By Gary H. Anthes
WASHINGTON

Procurement expert Bob Dornan told the story of a U.S. Navy official who called him recently in a PC crisis.

Apparently the official's unit had for years purchased PCs from Gateway 2000, Inc., and the Navy had found the machines capable, cost-effective and easy to buy.

"But then a procurement official — in his infinite wisdom — decided to put it out for bids," explained Dornan, senior vice president at Federal Sources, Inc. in McLean, Va., a consultancy specializing in federal information systems procurement. "They ended up with rotgut PCs. There were 10 of them stacked up in the [official's] office; she couldn't even take them out of the boxes because they didn't have the Underwriters Laboratory certification. But they were cheaper."

Everyone has a favorite horror story about how the government messes up when

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GSA administrator Roger W. Johnson: *'We haven't been delegating; we've been abdicating'*

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■ **Charles Babcock** examines the benefits of microkernel-based operating systems in a client/server world. *Page 6*

■ Ellis Booker says that worries about **privacy on the information highway** are folly. *Page 35*

■ IS executives need to hear Microsoft and its consulting group singing from the same NT songbook, **Bill Laberis** says. *Page 34*

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Executive Briefing

IS managers need top-notch leadership training if they're going to avoid being the next injured seal in a sea of sharks. But before you sign up with a business school or executive training program, you'd better shop around. *Page 73*

Despite years of complaints about the rigidity and high costs associated with **tiered software licenses**, few user shops have adopted the alternative pricing models that vendors have introduced during the past two years. *Page 1*

The widely publicized attacks on the Internet in recent weeks have splashed the **open electronic playground** with a dose of cold reality. *Page 50*

As the superhub market heats up, users are looking to such boxes to boost **network performance** and cut administrative costs by simplifying network management. *Page 50*

Nypro, Inc. is dazzling demanding customers in manufacturing circles by bringing them into its own **internal manufacturing process**. *Page 83*

Most agree federal IS procurement is badly flawed and produces headaches like rotgut PCs. However, **no consensus** exists on what should be done. *Page 1*

ELECTRONIC SHOPPING WILL LEAD TO REDUCED PRICES —JOE M. THOMPSON, THE U.S. GENERAL SERVICES ADMINISTRATION

SEE STORY PAGE 1

Interest in data warehousing appears to be spreading rapidly, but IS executives are still grasping for ways to sell the idea internally because it does not promise the kinds of direct paybacks typical of large IS projects. *Page 20*

When Ford of Europe's Parts and Services Operations decided to outsource, it sought a **commitment of exclusivity** from prospective vendors. *Page 59*

American Airlines' extensive Unix expertise has not protected it from **common Unix obstacles**—time-consuming migrations of Unix code between hardware platforms and a lack of standards-based systems management software. *Page 62*

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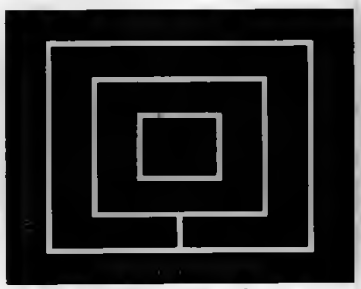

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Unix platforms

Notes for Solaris may spur consolidations

By Michael Vizard

■ Lotus Development Corp. is expected to deliver this week its first Unix implementation of Notes, nearly 12 months after announcing the project.

Initially, Notes will be available on Solaris 1.1 systems from Sun Microsystems, Inc. Other Unix platforms that will be supported this year include SCO Unix from The Santa Cruz Operation, Sun's Solaris 2.0, Hewlett-Packard Co.'s HP/UX and IBM's AIX. Microsoft Corp.'s Windows NT support is also due this year.

Previously, Lotus executives had said Unix implementations would follow about every month after Solaris 1.1 shipped, but a Lotus spokeswoman last week would commit only to deliveries sometime this year.

NLM on the way

Meanwhile, the availability of a NetWare Loadable Module (NLM) version of Notes for Novell, Inc. networks has slipped slightly from February to March, company officials said.

The availability of Notes on the new platforms is expected to have broad-ranging effects, particularly for users with large Notes installations who will be able to consolidate Notes databases running on OS/2 servers onto larger Unix and NLM platforms.

"We've got a number of clients that want to have 100 to 130 people access the same server. What they are looking at is supporting a large number of users with fewer servers," said Norman Weizer, a consultant at Electronic Data Systems Corp. in Lexington, Mass.

Notes on RISC platforms running Solaris is about three times faster than it is on OS/2 and supports as many as 150 users per server, said Leon Alexandrou, a systems engineer at Syneties Corp., a Notes consulting firm in Wakefield, Mass. That is about twice as many users recommended for the OS/2 implementation of Notes, he said.

Many users said they are driven toward Unix and the NLM because they do not wish to support multiple operating systems at their sites.

"The past year, we saw a lot of pilots; this year we'll see a lot of rollouts using the more robust back-end servers," Alexandrou said.

In addition, some Notes customers may opt to use Notes running on Unix systems to provide a hub for linking remote Notes sites over the Internet.

"Most corporations are going to use private networks. They don't want to put corporate information out over the Internet for security reasons," Weizer said.

Much ado about Notes

As part of its continuing bid to build an industry around Notes, Lotus last week announced that 10 software vendors have signed on to support Notes/FX, a protocol that allows applications to replace the existing Notes editor.

Notes/FX consists of Version 1.0 of the Object Linking and Embedding interface in Windows and the Notes application programming interface (API) to allow PC applications, such as the ones in SmartSuite, to use Notes as a container for stored documents.

Last week at Networks Expo in Boston, Absolute, Inc., Brainstorm Technologies, Inc., Clear Software, Inc., Distributed Systems Solutions International, MFJ International, No Hands Software, Inc., ObjX, Inc. and Revelation Technologies, Inc. all announced the inclusion of Notes/FX in their software.

For custom service

In addition, Corporate Image Software, Inc. in Cambridge, Mass., announced a service that will help corporate information systems shops integrate Notes/FX with their custom applications.

Meanwhile, Microsoft, WordPerfect Corp. and Borland International, Inc. have already licensed the Notes API, but none has announced specific product delivery plans.

—Michael Vizard

OpenDoc group plans anti-OLE campaign

By Michael Vizard

As part of an overall bid to drum up support from software providers, the leading backers of the OpenDoc specification last week committed to a fall delivery date for the compound document architecture for Windows, Macintosh and OS/2 platforms.

But OpenDoc's success will depend on whether backers can convince developers that OpenDoc's technical advantages warrant diverting their limited resources away from Microsoft Corp.'s Object Linking and Embedding (OLE) 2.0.

Amassing the troops

Led by IBM, Apple Computer, Inc. and WordPerfect Corp., the backers of OpenDoc have created the Component Integration Laboratories (CIL) in San Francisco to establish their architecture as a counter to the OLE specification for Windows and the Macintosh [CW, Sept. 20, 1993].

Both architectures are the strategic object technologies that vendors will use to seamlessly integrate PC applications with one another.

Apple plans to make OpenDoc available on the Macintosh by this fall, and IBM will incorporate it in OS/2. WordPerfect will make it available for Windows in the same time frame. In addition, WordPerfect will provide the technology to let OpenDoc applications share data with OLE applications.

Meanwhile, other members of CIL, which include Novell, Inc., Oracle Corp., SunSoft, Inc., Taligent, Inc. and Xerox Corp., are working to bring OpenDoc to Unix platforms.

How they differ

OpenDoc differs from OLE in that it includes a distributed computing infrastructure that allows applications to share data across a network.

OpenDoc supports the multiple inheritance of functions across multiple objects and allows users to create objects that span multiple pages. According to CIL members, OpenDoc also supports the Common Object Request Broker Architecture standard created by the Object Management Group.

Other key issues, they said, include the fact that OpenDoc is easier to work with. Creating a typical OpenDoc application requires developers to provide one interface and 50 functions. That same application in OLE 2.0 would require 13 interfaces and 126 functions.

Microsoft counters that OLE 2.0 was designed for a much richer set of long-term goals because it is the basis for Microsoft's future object-oriented operating system, Cairo. As such, OLE 2.0 is necessarily more complex than an OpenDoc specification aimed only at creating compound documents.

Object in question

Although OLE lags behind OpenDoc in some features areas, developers like that it is available today

	OpenDOC	OLE
	Yes	No
	Windows, Mac, OS/2	Windows, Mac
	Yes	No
	Yes	Yes
	Yes	Yes
	Yes	No*
	Yes	No
	1994	Now

*Expected in Cairo object-oriented operating system next year

OLE support

Next month, Microsoft will deliver OLE 2.0 support in its Powerpoint presentation graphics package, bringing that application up to par with Word and Excel in OLE 2.0 support. OLE 2.0 support for Access is due this spring and for Mail, later this year.

Integrating Windows and OS/2 is a key challenge for imaging adopters. See story page 39.

Corrections

A story in the Feb. 7 issue incorrectly stated that Microsoft Corp. has shipped 50 million copies of Windows. The correct figure is more than 40 million copies.

Due to a reporting error in the Jan. 31 issue, the National Micro Managers Association was inaccurately referred to as a regional group.

Total revenue figures for information technology training and education cited in "Training changes" [CW, Jan. 24] should have indicated growth from $5.86 billion last year to $9.97 billion by 1997, according to International Data Corp.

The 1993 revenue figures in the Jan. 31 Industry Pulse for Intel Corp., NEC America, Inc., Motorola, Inc., Toshiba Corp. and Hitachi America, Ltd. were listed in billions, not millions.

Due to a reporting error in the Dec. 27/Jan. 3 issue, the story "Digital assistants to come of age in 1994" stated that United Missouri Bank had purchased 30 Apple Computer, Inc. Newtons. It has not.

The map that accompanied the Jan. 31 story "Intel evangelizes 'telePCs' to masses" should have shown that Oklahoma, Kansas, Missouri and Arkansas are part of Southwest Bell, not US West.

Due to a reporting error, the name of Milwaukee-based software consulting firm McHugh Freeman and Associates was misspelled in a story in the Jan. 24 issue.

Gentlemen, start your snails.

PC Magazine independently defined and ran a battery of real-world performance tests to compare database server software. PC Magazine states, "Oracle7 was the hands down winner on our performance tests, outperforming the others by a wide margin."

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PC Magazine

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PC Magazine

CONCURRENT RANDOM WRITE

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PC Magazine

CONCURRENT RANDOM READ

"Oracle7's read-consistent model and record level locking helped it breeze through the test."

PC Magazine

Just to be fair, here's what PC Magazine had to say about the other guys:

Informix OnLine *"Only after days and days of repeated crashes were we able to obtain a full set of results."*

Ingres Server *"...we would not recommend it because of the showstopping multi-user bug we encountered."*

Gupta SQLBase *"...took an unthinkable 60 hours to load the tables and then crashed on the index builds..."*

For your copy of the complete PC Magazine article, including test results call 1-800-633-1071 Ext.8129.

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ORACLE

Microkernel tie to client/server

What operating system makes for the most effective client/server implementations? Advocates of the microkernel approach say systems that embrace the minimal core design will lead to better client/server systems. IBM's upcoming Office OS, based on the Mach microkernel system, and the more layered approach of Microsoft's Windows NT provide contrasting ways of looking at this issue.

In effect, we already know that established operating systems provide a rocky path. IBM's MVS, Digital's VMS and most of today's Unix versions make good server systems but have the drawback of being too bulky to also sit on a client system. They are also monolithic in that they consist of a series of interlocking software layers that force an active process to proceed up and down them through a series of prescribed steps, like traversing a ladder.

Windows NT is different from the monolithic model in some respects and resembles it in others. IBM's Office OS comes closer to a true microkernel model, or at least that is the claim of Larry Loucks, IBM fellow and spokesman for Personal Systems Software architecture, at a recent gathering in Austin, Texas.

Many people see the value of a tightly knit, modular and flexible microkernel system suitable for client/server computing.

Charles Babcock

In its core executive, NT represents a breaking up of the rigid layers into discrete modules that can interact with one another rather than going through a prescribed hierarchy. In this way, Windows NT resembles the microkernel approach. The executive's components — process manager, I/O manager, virtual memory manager and others — are interfaced directly into a kernel that grants them access to the hardware.

But other services, including I/O and networking, also perform their work inside the executive, bulking it up and giving it more layered characteristics. Helen Custer, author of *Inside Windows NT* from Microsoft Press, wrote that these services make the NT executive "a complete operating system unto itself.... The structure of Windows NT borrows from both the layered model and the client/server [microkernel] model."

This approach was taken because Microsoft's design team wished to give NT as much built-in networking performance as possible, probably with an eye toward competing with Novell's NetWare. It is quicker for procedure calls to execute in the shared memory of kernel space than it is to send and receive messages between discrete modules outside the kernel.

A truer microkernel approach, however, is to strip the core operating system down to bare bones, as does the upcoming IBM Workplace OS, and relocate as many system services as possible outside the kernel. Indeed, one of the strengths of microkernel design is that modules, including servers that represent emulations of other operating systems or "personalities," can be added to the operating system without disturbing the kernel.

Windows NT and Workplace OS locate the "personalities" outside the kernel, but Workplace OS has a more minimal microkernel and activates more services through messaging. The Workplace OS microkernel can run on clients and process messages for services that may exist out on the network rather than on the client.

Taligent from Apple/IBM will also borrow heavily from the Mach 3.0 example. Other microkernel operating systems are being worked on by the Open Software Foundation, Unix System Laboratories and Sun. These parties sense the value of a tightly knit, highly modular system. The microkernel of Workplace OS will amount to only 35,000 lines of code, Loucks says, compared with 12 million to 18 million lines of code in standard Unix.

Windows NT, however, will offer networking and performance advantages and will display an affinity for Windows clients, but some microkernel flexibility was sacrificed along the way.

Babcock is *Computerworld*'s technical editor. His MCI Mail address is 575-2737

IBM faces tough sales

Some customers bemoan loss of dedicated sales force

By Johanna Ambrosio

IBM is accelerating the move to outsource part of its sales force — and some affected customers do not like it at all.

IBM has had the so-called agent program — which replaces dedicated salespeople with independent sales agents — in place since 1988. But as the size of IBM's sales force has dropped through downsizing initiatives in the past few years, the agent program has assumed more importance as a way of reaching customers with 100 to 1,000 employees.

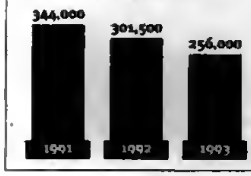
Agents share

Today, about 25% of IBM's revenue from small to medium-size accounts is generated by agents, according to Doug Krebs, director of channel management and strategy; the rest of the small-business revenue comes from remarketers and other IBM sales channels. By the end of the year, IBM's goal is to generate about 30% of that revenue from agents.

Belt tightening

IBM is turning to independent sales agents as part of a larger work force reduction initiative

WORLDWIDE HEAD COUNT FOR IBM (YEAR-END TOTALS)



But some of that growth may come at the expense of customer satisfaction. The issues, as customers see them, include discomfort with buying from a middleman who does not know their business as well as their IBM sales representative and frustration at not always being told when their account has been turned over to a non-IBM sales representative.

"Part of my concern is that I spent $175,000 on hardware last year, and I feel IBM owes me more of a commitment than an agent," said Bob Wagenaar, director of MIS at Silgan Containers Corp. in Woodland Hills, Calif. He said he discovered that his previous IBM sales representative was no longer assigned to his account when he tried to call her and got a voice-mail message that her job had changed. He is waiting to hear whether he has an IBMer assigned to his account or whether he will be dealing with an agent only.

Big numbers

IBM is working with 450 agent companies — which represent IBM only — in 800 territories throughout the country. "Tens of thousands" of customers are called on by these agents, according to an IBM manager.

First McNess Co., a livestock feed manufacturer in Freeport, Ill., was also unknowingly turned over to an agent, according to Mick Calhoun, director of information services. The other problem, he said, is that his agent specializes in AS/400s — but his shop runs a 4381.

"When we used to have an IBM sales rep call on us, he used to bring us ideas," Calhoun said. "He would understand our business as best as he could and not just ask us what we wanted."

Wynn Oil Co., a System/38 shop in Azusa, Calif., also deals with an agent. "I don't see what the agent is accomplishing," said Richard Rosenbluth, director of information systems. "It's an extra body in there."

Krebs responded that IBM's quarterly surveys show that users are as satisfied with the agent channel as they are with IBM sales representatives. Regarding the turning over of customers to agents without informing the customer, he said, "The coverage of any account is a local decision. It is up to the management" in each of IBM's geographic trading areas as to which customers receive agents vs. IBMers.

Not all customers are unhappy. David Pinkus, manager of MIS at Fuller Co. in Bethlehem, Pa., said, "We're getting better service now than we did with our IBM rep. We went for a while not knowing who our rep was." Now, Pinkus said, the agent brings in appropriate IBMers for him to talk with, most recently for an imaging project.

Like it or not, agents are a fact of life for some shops. "It's aimed at the low end of the market, where IBM has gone in and figured out they cannot afford to have a Blue suiter call on a client," said Gartner Group, Inc. analyst Bob Puffer.

Paul Smith, general manager at Computer Aid in Allentown, Pa., and one of the agent firms with which IBM does business, agreed. "Face-to-face marketing is expensive. Our overhead is less than IBM's."

Oracle offers software for superhighway

By James Daly

Oracle Corp. last week unveiled its plans to pave the information superhighway with a new set of software products that will bring interactive services to the home.

Oracle will offer a line of software from the central server that stores and retrieves a vast stream of video information on the television. A set-top box will allow it to resemble a TV but act like a computer. Central to that plan is Oracle's Media Server, a digital multimedia library that stores and retrieves video and audio images.

Oracle last week announced 20 set-top box makers that will develop software for its Media Server, including Apple Computer, Inc., RAM Mobile Data, Sharp Electronics Corp., Kaleida Labs, Inc., Motorola, Inc., Scientific-Atlanta, Inc., Sega of America and The 3DO Co.

Corporate users are going to be important paying customers on the information superhighway.

"There's probably going to be a bigger impact on the office than the consumer," said Oracle President Lawrence Ellison. "You can show up at the office and have meetings with your coworkers without ever leaving the office."

Ellison said an interactive TV setup will cost about $800 for the average home.

Notes potential

CONTINUED FROM PAGE 1

aware of anyone that gets 15% royalties on anything," one analyst said.

"It opens a whole realm of possibilities that we didn't have yesterday," said Gary Clare, director of the technology competency group at professional service firm Coopers & Lybrand in New York. For example, the company could use Notes to broadly distribute tax information, he said.

"We could use our existing Notes servers and databases to link to suppliers and other business partners," said Richard Lester, vice president of information services at Associated Grocers, Inc. in Seattle.

According to Lester, public network Notes servers could make electronic data interchange (EDI) transactions more efficient because "it would give us the ability to do things like [use] E-mail to explain complicated documents."

The punch list

However, before the AT&T service and new Notes client are available, the companies must finish hammering out details of the arrangement and address outstanding technical issues.

For instance, Notes has built-in security, but accounting and auditing mechanisms would have to be added before it could serve as the basis for public on-line services, said Patricia Seybold, president of Patricia Seybold Group in Boston.

Also, before a public version of Notes could be used for EDI-type commerce, Lotus would have to improve its ability to automate business-critical transactions and support existing EDI standards for forms formats, Seybold said.

Furthermore, with on-line services such as America On-Line and Prodigy thriving, and Apple Computer, Inc. and Microsoft Corp. expected to come to market with various on-line services, Lotus and AT&T will be entering an increasingly competitive market. Some observers are questioning what their value-added will be.

"Even though Oracle and Microsoft [groupware products] are behind Lotus', Oracle still provides a much better database architecture for this sort of thing — by light years," one Wall Street analyst said. "Lotus is already talking to Oracle about making the Oracle database snap on to Notes."

Joining the crowd

Lotus has similar arrangements with other service providers. For instance, CompuServe and Wolf Communications Co. already offer Notes back-end messaging and database replication services. However, the AT&T support and the Notes new client could significantly ramp up Notes use.

Several large Notes sites said they expect that the availability of several service providers running Notes networks will reaffirm their decision to buy into Notes. The emerging market should spur competition and, hopefully, reduce prices, the customers said.

"Companies will be interested in this for the same reason that people use value-added networks today: for companies that want to communicate with each other but don't want to put leased lines in," said David Taylor, vice president of electronic commerce strategies at Gartner Group, Inc. "It's been happening using EDI and E-mail for years. Notes seems new because it's a LAN-based phenomenon," Taylor added.

For Notes power user Price Waterhouse, the "lite" Notes client is exactly what the company has been demanding from Lotus, according to Sheldon Laube, national director of information and technology at the firm's Menlo Park, Calif., headquarters.

"We have a whole program to share our information with our clients using Notes. This year, we're hooking up 1,000 customers, and having a stripped-down version for people who want to read and write to our databases and not bother with the applications functions sounds terrific," Laube said. How terrific it is depends largely on the price of the new Notes client, he added.

Additionally, the real value lies in offloading data center functions for supporting 1,000 customers, Laube said.

Senior editor Ed Scannell, senior writer Michael Fitzgerald and Midwest bureau chief Ellis Booker contributed to this report.

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SNMP

CONTINUED FROM PAGE 1

management systems, which domain managers, each responsible for a particular user or device group, can use to interactively communicate with one another or with a central system. This provides scalability and resolves wide-area network traffic issues that arise when a single SNMP-based management system must continually poll all managed devices across the enterprise.

The manager-to-manager Management Information Base (MIB) specifies how network management systems should distribute polling, threshold and alarm functions among different machines. It is a key first step for building scalable, distributed management systems in a standardized way because it helps minimize network traffic, according to Internet Engineering Task Force (IETF) developer Steven Waldbusser, who is also a manager of network development at Carnegie Mellon University in Pittsburgh.

But of the leading network management platforms, only SunConnect, Inc.'s SunNet Manager 2.2 has any SNMP 2 features now, and those are limited to bulk data retrieval capabilities. Hewlett-Packard Co. and IBM have said they will add some portions of SNMP 2 to their platforms, HP within a few months. However, none of the major vendors have committed to supporting SNMP 2's manager-to-manager MIB.

Lack of support for the MIB suggests that users with management platforms from multiple vendors could be stuck with no way to allow those platforms to share polling and alarm information.

In the state of Utah government office, several agencies are shopping for network management platforms independently, according to Rolen Yoshinaga, a director of information technology for the state of Utah Administrative Office of Courts in Salt Lake City.

"Right now we're the network management pioneers, but as the other departments move forward, I suspect interoperability will become a big issue," Yoshinaga said.

However, even if the vendors decided to implement the manager-to-manager MIB, a common database format is needed to spur interoperability beyond shared alarms. Vendors have not begun working on that, said John McKenna, an IBM NetView/6000 senior programmer.

What's the holdup?

Interviews last week revealed a variety of reasons for vendors' leisurely SNMP 2 implementation schedules.

SunConnect chose not to implement the security features because the encryption technology is restricted by the federal government under it's export controls, and the company did not want to develop separate domestic and foreign software versions, according to a SunConnect spokesman. Sun did put the security code in to SunNet Manager and will activate it if it can resolve the export issue, he added.

HP and IBM said their customers have not demanded the capabilities found in SNMP 2. But Shirane, an IBM NetView/6000 user, said, "They never asked us if we wanted those features."

Although the SNMP 2 specifications were published in 1992, vendors cited the lack of a finished standard as a factor in the delay. "That's a red herring," Waldbusser said.

"The IETF standards process is different in that draft standards are intended for implementation rather than comment," he said. The standard is completed before it is sent to draft form, and the rest of the standard process is a formality, he said.

No good alternative methods exist for addressing the security and performance problems. And while vendors can use proprietary technology to add distributed capabilities, that exacerbates interoperability problems, according to Steven Morgenthal, vice president at Unified Systems Solutions, Inc., a systems integrator in Mountain Lakes, N.J.

While SNMP 2 shows promise in solving the issues, Morgenthal said, it has some drawbacks. For instance, the authentication and encryption solve security problems but add several layers of complexity to the administrator's job, he said.

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TRBA

News Shorts

Kroger puts Heschel in new role

Kroger Co. last week promoted Michael S. Heschel, 51, to the position of senior vice president of information systems and services. Besides directing IS, Heschel will coordinate programs in logistics and re-engineering for the Cincinnati-based supermarket chain. He served as chairman of Security Pacific Automation Co. before joining Kroger in 1991.

Bug gives ATM users rude shock

A software glitch in **Chemical Banking Corp.**'s automated teller machine (ATM) network in New York last week caused double-posting of withdrawals and deposits. In all, 150,000 accounts were affected. Systems modifications made to the ATM network caused the 12-hour snafu, according to a Chemical Banking spokesman. Customers who made a $100 withdrawal from a Chemical Banking ATM found that a $200 charge had been posted against their account, the spokesman said. The problem had been corrected by late last week, and all customers accounts would be rectified, he said. The spokesman added that the problem will not result in any loss of customer or bank funds.

Novell to promote common UnixWare

Novell, Inc. is expected to announce the formation of an industry group this week that will promote its UnixWare operating system as a single set of binary-compatible system code for users of Intel Corp.-based computers. Among the firms likely to join Novell are Unisys Corp., AT&T Global Solutions (formerly NCR Corp.), and ICL, all of which license UnixWare source code. Novell last week also confirmed earlier reports that it is in discussions with several vendors about the outright sale of Unix source code rights.

Computer role cited in housing bias suit

Proprietors of **Places to Live, Inc.**, an East Meadow, N.Y., apartment referral service, were sued last week by the New York state attorney general for allegedly manipulating computer programs to deny information to minorities about housing in white neighborhoods. Places to Live owner John McDermott was accused of programming his company's computer to indicate the ethnic background of prospective tenants and landlords, along with the biases of the landlords.

Cincom enters imaging market

Cincom Systems, Inc. last week introduced a document imaging and signature-capture product for hospitals and physicians. Called Docview, the system is the first imaging application from the Cincinnati software firm. Docview is the result of a partnership between Cincom and **Dolbey and Co.**, also located in Cincinnati. Docview runs on most mainframe platforms and offers an interface to most medical computer systems, according to Cincom. The software ranges in price from $45,000 to $150,000.

SHORT TAKES **Digital Equipment Corp.**'s full product catalog will now be available for free to educational and research customers over the Internet, the company said last week. . . . **SHL Systemhouse, Inc.** has announced that it won a five-year, $27 million job to provide **Greyhound Lines of Canada Ltd.** with information systems and network management, application development, maintenance, support and a help desk. . . . Rich Kirby was named executive vice president of operations and information services at **Graff Pay-Per-View, Inc.**, a New York-based cable TV service. Kirby was formerly vice president of operations.

Computing for the gold

By Jean S. Bozman

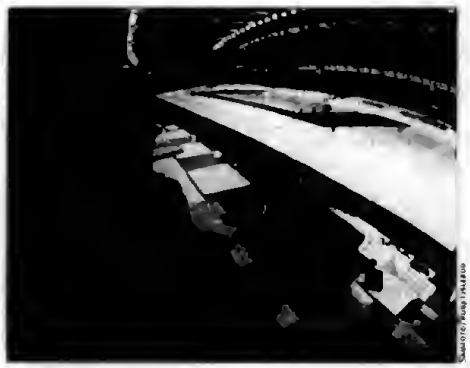
Lillehammer, Norway, was transformed into a high-tech computing wonderland last week as computers churned out statistics, athlete biographies, building blueprints, digitized television images and on-site security system clearances for the Winter Olympics.

For the most part, it was tried-and-true mainframes running the show. IBM, which donated time and equipment to the Olympic effort, relied on about 3,000 PCs tied to System/390 mainframes in Oslo running CICS to provide core information systems.

"We're using NetView on the mainframe for surveillance of the [SNA] network," said Oystein Wall, the IBM senior systems engineer and 26-year company veteran who is managing the data center and SNA network at Lillehammer.

Journalists were able to use an IBM PS/2-based Commentator system through a touch-screen interface. The same system could be accessed through IBM PCs in Paris and Tokyo, IBM said.

A large IBM AS/400 was the focal point of Olympic data processing for ticketing and transportation applications in Lillehammer.



An Olympic commentator *uses a touch-screen PC at Hamar Olympic hall in Lillehammer*

Not the only one in the race

IBM was not alone in bringing computers to the Olympics. A video production company used a Silicon Graphics, Inc. Unix-based Crimson Reality Engine to create the TV graphics used by CBS Sports in broadcasting the games.

And, not to be outdone, Sun Microsystems, Inc. sold 100 Sun SPARCstation 10 machines to the Olympic security force. The workstations host geographic information systems that display the location of vehicles on the ground using satellite global positioning systems.

Back in California, Sun linked an Internet server at its Mountain View headquarters to the Norwegian Oslonett electronic bulletin board, which is broadcasting Olympic game results across the Internet. At last count, the statistics server was handling 6,000 connections an hour.

Powersoft offers low-price desktop

By Melinda-Carol Ballou

Powersoft Corp.'s push into the desktop terrain controlled by Microsoft Corp. and Borland International, Inc. received a thumbs-up from users and analysts queried last week.

PowerBuilder Desktop is a development tool with the functionality of PowerBuilder 3.0, but it bundles the Watcom SQL database and allows access to PC databases such as Borland's Paradox and Microsoft's FoxPro. The tool ships next month at a promotional price of $249.

This new iteration of PowerBuilder fills a gap for Powersoft and desktop developers seeking a low-end client/server offering that can scale up the enterprise as development needs demand. For example, pre-existing desktop applications for dBase or FoxPro will be able to easily move over to the PowerBuilder development environment using the new tool.

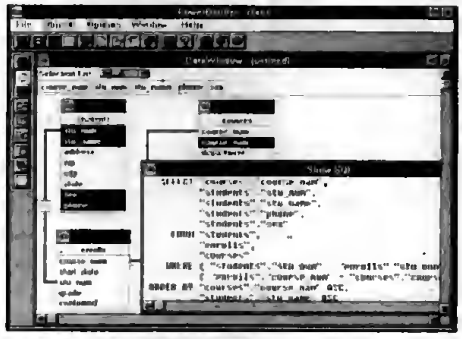
The Powersoft announcement "is important because it offers scalability from the desktop to the higher end," said Ron Schaefer, director of research and development at Union Pacific Technologies, Inc.

And as desktop developers require support for a range of databases beyond the desktop, they can add PowerBuilder's Team/ODBC kit, which provides database connectivity indirectly through Microsoft's Open Database Connectivity (ODBC) standard. Or they can bring in the Powersoft Enhanced Database tool kit, which offers native support for a range of corporate relational database management systems.

To fill out its high-end packaging strategy, Powersoft will price PowerBuilder Enterprise at $3,395, which includes PowerBuilder Developer Toolkit, PowerBuilder Application Library and Watcom Image Editor, along with the products mentioned above.

Corporate IS managers were pleased with their ability to use the same tool to inexpensively prototype and develop applications.

"In the past, we had people prototyping in Visual Basic, and then we had to redo everything in PowerBuilder," said Patty Passadori, manager of financial and accounting systems at Charles Schwab Corp.



Powersoft's PowerBuilder Desktop *allows access to the Watcom SQL database through DataWindows*

Industry analysts said Powersoft's new offering is well-positioned. "The higher-end tools from vendors such as Oracle and Sybase are overkill and too expensive, while the low-end FoxPro environments have ease of use and low cost but lack reliability and performance," said Rich Finkelstein, president of Performance Computing, a Chicago consulting firm. "PowerBuilder Desktop offers a simple front end and simple back end with an upgrade path. I expect it to do very well in small to medium organizations."

Blue Sky ships new version of WindowsMaker, Page 68.

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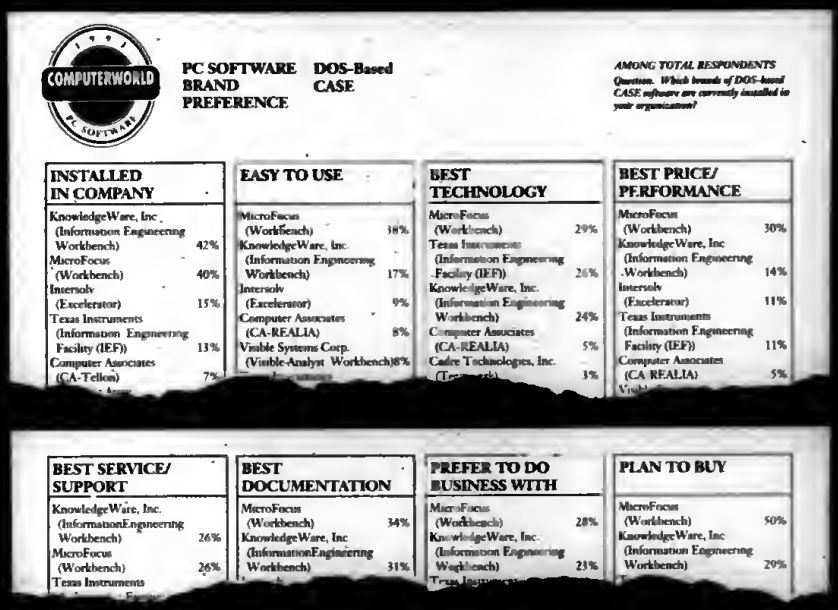

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Intersolv (Excelerator)	15%	Intersolv (Excelerator)	9%	KnowledgeWare, Inc. (Information Engineering Workbench)	24%	Intersolv (Excelerator)	11%
Texas Instruments (Information Engineering Facility (IEF))	13%	Computer Associates (CA-REALIA)	8%	Computer Associates (CA-REALIA)	5%	Texas Instruments (Information Engineering Facility (IEF))	11%
Computer Associates (CA-Telon)	7%	Visible Systems Corp. (Visible-Analyst Workbench)	6%	Cadre Technologies, Inc. (Teamwork)	3%	Computer Associates (CA-REALIA)	5%

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Distributed computing

Wells Fargo tags DCE for bankwide project

By Jean S. Bozman
SAN FRANCISCO

Having put the Open Software Foundation's (OSF) Distributed Computing Environment (DCE) through its paces for six months, Wells Fargo Bank is poised to build a bankwide application for accessing customer accounts from a network of distributed servers.

If all goes as planned, some DCE "cells" could go on-line with a client/server customer support application later this year, said Tsvi Gal, vice president of information technology at Wells Fargo. Senior executives still have to approve the project.

Money talks

Wells Fargo, which had $51 billion in assets for the year ended Sept. 30, 1993, is planning to use the OSF's DCE to create a user-centric system that will link clients to multiple database servers.

Safety net

The benefit to the bank is that customer account data could be replicated in several servers, preventing any one server from causing systemwide downtime. Even in the event of an earthquake, loan officers, tellers and customer service personnel throughout California could access customer data without knowing which mainframe or Unix server holds those records.

Wells Fargo wants to enhance central-site mainframe storage of all customer records with replication of customer data in several servers across the network, said Fima Katz, a consultant at Life Computer Systems in Pleasant Hill, Calif., which was retained by Wells Fargo to build the prototype DCE network.

Eventually, DCE technology would also allow large applications or databases to be split among several servers, he said.

The DCE technology is the linchpin of a wide-reaching client/server architecture that includes PCs, Unix servers and mainframes. DCE will allow distributed computing to be intertwined with central-site data processing.

"We're at the verge of a new technology," Gal said. "The cost of doing it is going to be large, but the costs of not doing it may be larger." If the bank makes a mistake in implementation, the new technology would be a liability instead of a competitive edge, he said.

Better late than never

Full-scale production at hundreds of bank branches in California would follow in time.

"It may be two to three years before it's over," Gal said, "but we will definitely want to start in 1994." Going into production will be contingent on the approval of Wells Fargo senior management, which will get a formal presentation of the DCE project and plan in March, Gal said.

According to the DCE plan, PCs and Unix workstations in Wells Fargo offices and branches will dial into DCE's software directories to request information without specifying which servers hold the target data. After IBM ships DCE support for its MVS mainframes, DCE will also link with Wells Fargo's other IBM and Hitachi Data Systems Corp. mainframes, providing enterprisewide access to data.

Clearing the hurdles

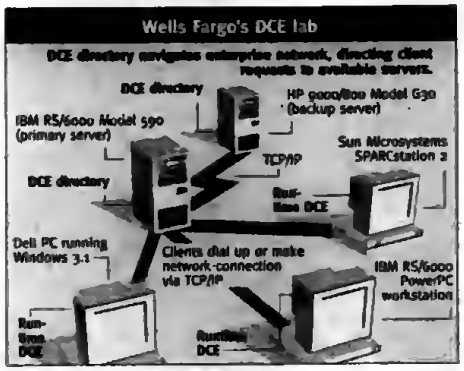
Several technical challenges must be overcome before Wells Fargo puts DCE applications on-line. Developers are looking for fail-safe ways to give unique names to users and account numbers. The bank is also waiting for better systems management and security utilities, expected when the OSF ships DCE 1.1 (see box below), Gal said.

The Customer View Reference application will access data stored in mainframes under IBM's DB2 relational database and data stored in IBM RS/6000 and Hewlett-Packard Co. Unix servers under the Oracle Corp. relational database (see chart).

During the next 10 years, most U.S. banks plan to surround mainframe-based legacy systems with new client/server systems, according to Diogo Teixeira, president of The Tower Group in Wellesley, Mass.

Other DCE cells are going on-line, said Ted Hanss, president of the OSF's end-user steering committee. Charles Schwab & Co. in San Francisco installed one DCE cell in its Phoenix offices late last year [CW, Dec. 6, 1993].

"Schwab and Citicorp are rock-solid, conservative companies that depend on computers to move money around," said Hanss, who is installing DCE applications at the University of Michigan at Ann Arbor [CW, Jan 10]. "If they're committing to use DCE, then it's not just the leading-edge that believes DCE will enable the kind of distributed computing users want to do."



Opportunity knocks

Some DCE sites are already moving pilot applications into limited production, according to the OSF in Cambridge, Mass., which wrote the DCE source code. "Most of the people committed to DCE have the lab, and they've done their initial testing," said David Lounsbury, director of distributed environment engineering at the OSF. "The next step is to port some mission-critical apps and try them out in a production environment."

More good stuff to come

DCE code supports coordinated processing throughout an enterprise by providing network-based directories of files, security software and systems management utilities. Version 1.1 of DCE, which is scheduled to enter beta testing this spring, will provide additional systems management and security features to help users build commercial-grade DCE applications. However, users will not receive DCE 1.1 tool kits from systems vendors until late 1994 or early 1995.

DCE 1.1 includes better security features, an auditing capability, a unified systems administration utility for all DCE modules and a new scripting language that lets users customize DCE systems management and security. One new feature allows applications to be translated for use in various written languages besides English, including Japanese, said David Lounsbury, director of distributed environment engineering at the OSF.

DCE 1.0.3 is available for Unix systems from IBM, HP and Digital Equipment Corp.; IBM's OS/2; Microsoft Corp.'s Windows 3.x using a tool kit from Gradient Technologies, Inc.; and Sun Microsystems, Inc. machines using Transarc Corp.'s DCE tool kit.

—Jean S. Bozman

Poor man's ISDN wins support

Protocol can combine data, voice on a single line

By Stuart J. Johnston

Microsoft Corp. and a slew of telecommunications industry players last week endorsed a protocol that may provide a sort of poor man's Integrated Services Digital Network (ISDN).

The protocol will be built into modem chips and will let users exchange electronic documents and bit maps over a single standard phone line while a voice call is in progress.

VoiceView, developed by tiny Radish Communications Systems, Inc. in Boulder, Colo., is a switched protocol that allows two enabled modems to put the voice portion of a call on hold long enough to transfer data and then switch back to the voice call.

"I would drag a file [I wanted you to see] and drop it onto a telephone icon" in Windows, said Aaron Getz, technical strategist at Microsoft's digital office systems group.

"You'd hear a chirp, like a call-waiting tone, be put on hold briefly and then an icon would appear" on your system, Getz said. It would take about six seconds to send a two-page Microsoft Word document, one second for a business card and at least 10 seconds for a full-screen bit map, he said.

"We invented a product that would do many of the ISDN things now," said Dick Davis, chairman and chief technical officer at Radish Communications. The company has been shipping dedicated devices that accomplish these functions since 1992.

Big time-saver for customers

Oppenheimer Shareholders Services, Inc. in Denver put about 50 VoiceView sets in broker offices in November 1992, said Pat Lovett, vice president over dealer telephones at the mutual funds company. "We would send [the brokers] screens of information about their clients and about our mutual funds. It was really nice because they didn't have to wait for a hard-copy statement," Lovett said.

Last week's announcement included endorsements by a major manufacturer of modem chips, Rockwell International Corp., as well as by major modem vendors such as Hayes Microcomputer Products, Inc., Intel Corp. and U.S. Robotics, Inc.

The first modem products to incorporate VoiceView should appear this summer. Modems using the technology are expected to cost little more than existing modems.

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License reforms

CONTINUED FROM PAGE 1

enterprisewide licensing agreements fit into our business at the present time," said Jim Gray, group vice president of MIS at Service Merchandise Co. in Nashville. "We're looking at our long-term strategies for rightsizing, and we're just not sure where we want to be five or seven years from now."

Slow to take the bait

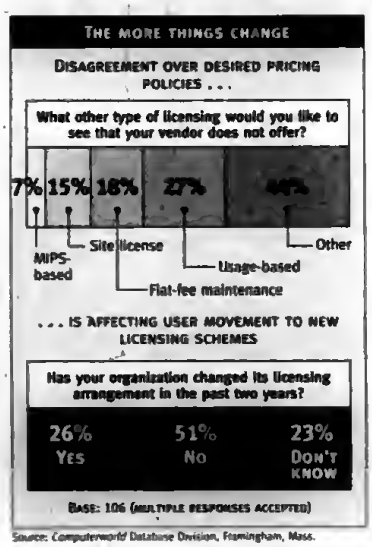
Users have been reluctant to adopt the alternate licensing offered by vendors such as Computer Associates International, Inc. and Legent Corp. because the deals are not dramatically different from the tiered pricing mechanism, one analyst said.

With a few exceptions, nearly all the new licensing schemes are still basically priced by the size and power of the processors used to run the software, said Bill McNee, vice president and service director at Gartner Group, Inc.'s Software Asset Management service in Stamford, Conn.

McNee said MIPS-based and enterprise licensing deals have begun to address user needs for systems software budget predictability, ease of administration and adequate price/value relationships, but he added that the current models are only a starting point for future licensing options, such as usage-based pricing.

Tierless structure unpopular

CA executives said most of their systems software license renewals and new customers continue to opt for the tiered pricing structure. To date, CA has signed fewer than 100 of its largest customers to enterprisewide, MIPS-based agreements, among them General Electric Co. and Citibank NA, according to analysts. And none of CA's customers have signed up for the vendor's "tierless" licensing plan since it was enacted 22 months ago, according to Arnold S. Mazur, a CA executive vice president.



Source: *Computerworld* Database Division, Framingham, Mass.

Under CA's tierless license, customers pay a onetime CPU upgrade charge for software equal to 1½ times the base license. For example, if XYZ Corp. paid $100,000 to license CA-1 on an IBM Group 50 machine and were to upgrade to an IBM Group 60 mainframe with a base license fee of $120,000, it would pay a onetime $60,000 surcharge to upgrade the software. But after paying the combined $180,000 fee, XYZ would never have to pay another upgrade charge for the software should it again move to a higher processor.

Most users who have entered into MIPS-based and enterprise licensing agreements with their vendors were upbeat about the deals. Spiegel, Inc., a Downers Grove, Ill., catalog and retail fashion distributor, has signed MIPS-based perpetual licenses with Boole & Babbage, Inc. and Legent during the past 15 months that have protected it from CPU upgrade charges, said Nick Iozzo, technical services manager at Spiegel.

Not accepted yet

Given customers' reluctance to embrace alternate licensing options, CA has taken a cautious approach to IBM's metering technique, though it supports the initiative. "Just because there's talk about metered pricing doesn't mean the marketplace will accept it," Mazur said.

Chief information officers at several large multinational IS shops said their preference is to sign global software licenses to ease the administrative complexities of maintaining separate geographic licenses. However, most independent software vendors have been unwilling to sign global agreements, according to Jack Cooper, CIO at Joseph E. Seagram & Sons, Inc. in New York.

Seagram's Jack Cooper: *A global software license was cheaper than maintaining licenses at 45 separate sites*

Seagram has been able to land just one global software license during the past two years — for IBM AS/400 financial applications provided by J. D. Edwards & Co. in Denver. That contract, signed in 1992, has been a boon for Seagram, Cooper said, because the spirits distributor has managed to retain control of its AS/400 software while ensuring localized service.

"From our standpoint, it has enabled us to deliver MIS services much more effectively at a lower cost on a global basis to our 45 divisions," he said.

Previously, the firm had higher administrative costs from maintaining a plethora of geographically dispersed J. D. Edwards licenses.

Latitude means savings

Spiegel, which runs a six-processor, 315-MIPS IBM ES/9000 Model 962 mainframe, will likely upgrade from the Group 90 machine to a Group 100 hub by year's end. Because the company was given "latitude" by Legent and Boole & Babbage to pay upgrade charges only when its CPUs move up in 100-MIPS increments or more, the retailer's software fees will not rise if it moves to a seven-processor, 365-MIPS machine. And Spiegel will incur only minor upgrade charges if it moves to an eight-way, 400-MIPS mainframe, Iozzo said.

> With a few exceptions, nearly all the new licensing schemes are still basically priced by the size and power of the processors used to run the software, said Bill McNee, vice president and service director at Gartner Group's Software Asset Management service

Iozzo said he expects the retailer will save $50,000 during the course of the two perpetual license agreements. "The Boole and Legent contracts have protected us from the rapid [corporate and MIPS] growth that we're having," he said

Still, Iozzo and other users said they are keeping a keen eye on IBM's metered pricing developments. Usage-based pricing "would allow us to get into products that we don't have a big use for today," said Adolph Kahan, manager of operating systems support at Royal Bank of Canada in Toronto.

Senior correspondent Gary H. Anthes in Washington contributed to this report.

Don't look to Big Blue yet

Don't expect usage software pricing from IBM — at least not for a while. An IBM manager acknowledged that the company's initial testing with customers was considerably off target, and IBM will continue to experiment before offering anything formal.

Although the company will continue to work on usage pricing, which measures and charges by how much of the processor the software actually uses, for now the focus will be on per-user or per-processor pricing models, said Linda Hubbard, IBM's manager of software business strategy. Operating systems will continue to be priced on the tiered model for the foreseeable future, she said.

IBM is also continuing to offer its Enterprise Agreement for Software, a three-year contract that gives very large customers breaks, including free version upgrades and the ability to add new software without paying for it until contract renewal time. IBM announced this agreement, along with its intention to provide usage-based and per-user pricing, at a customer conference in Chantilly, Va., last May.

On the measured usage front, Hubbard acknowledged that IBM's initial tests with 600 customers worldwide were off base. "We had taken an approach that would have meant a lot of changes" in customers' job control language code, she said. "Now we realize we have to embed the measurement tools in the software itself."

IBM does already have a measurement tool called System License Management (SLM) that it uses in some of its mainframe packages, but Hubbard said SLM "is not as open as we would like it to be, so we're still looking around" for a measurement tool. The goal is to work with other software vendors so there is some level of standardization in the industry, she said.

Lori Pena, president of the Technology Board of Trade, a consulting firm in Los Altos, Calif., said IBM's inability to provide true metered pricing for a while will not likely have an immediate impact on the industry because most users are not moving to that model right now anyway. Longer term, she said, the priority for vendors should be to minimize the confusion of every software product having a different license manager. To the extent that IBM can do that, it will help users down the road.

—Johanna Ambrosio

Novell, Intel team up on network management

By Elisabeth Horwitt

Novell, Inc. is extending its NMS 2.0 into the desktop management domain by incorporating Intel Corp.'s LANDesk Manager application suite into its NetWare Loadable Module (NLM)-based architecture, the vendors announced last week.

NetWare Management System (NMS) users will be able to initiate LANDesk Manager applications, including virus monitoring, automated backup, inventory and LAN traffic monitoring, from the NMS Windows console, company spokesmen said. Furthermore, NMS and LANDesk applications will be able to communicate.

For example, Intel's traffic monitor can alert NMS of an overloaded LAN; and NMS, alerted to a mirrored disk failure, can tell Intel's StorageExpress application to back up the primary disk, said Mike Maerz, a general manager at Intel.

This represents integration on a deeper level than Windows-based management systems such as Novell's have provided so far, according to Jill Huntington-Lee, a principal at Brandywine Network Associates, a consultancy in Cinnaminson, N.J. However, Novell still does not enable different management applications to exchange data, as is possible on Hewlett-Packard Co.'s Unix-based OpenView, Huntington-Lee pointed out. Novell has promised database-level integration in the future.

Intel has announced that LANDesk Manager will support OpenView as well but did not commit to a date.

LANding gear

LANDesk Manager includes the following modules:

- **Automatic backup**, either scheduled or event-driven.
- **Virus protection** that scans individual PCs.
- **Remote control** and view of a PC from a central console.
- **Information collection** on PCs' software and hardware assets.
- **Application-traffic tracking** on local segments.

All LANDesk applications are supported on DOS and Windows PCs; virus, inventory, and scheduled backup applications are supported on the Macintosh and OS/2.

Hello, there

While NMS can do limited PC management, such as seeing what PCs are on the network and who is logged on, it needs LANDesk Manager to "go down and figure out what type of PC" or determine what peripherals and software versions are installed, said Mark Livings, manager of distributed computing services at Quaker Oats Co.

NMS even needs Intel's product to monitor NetWare servers, Livings said. The current Novell management system "relies on an agent on the server to tell if the server is up or down, and when the server goes away, the agent goes away," he said.

In contrast, LANDesk Manager has a server monitor, a dedicated PC whose sole job is to "say hello to each server every 30 seconds," Livings said.

Quaker Oats currently uses both NMS and LANDesk manager as separate products, integrating the two will enable LAN administrators to initiate the management functions of both offerings from a single console, eliminating the "revolving chair" type of situation, he said.

LANDesk Manager is the first third-party product to become an NLM within NetWare Distributed Management Services, the next generation of NMS.

NMS 2.0 is priced at $2,495. Intel "snap-in modules" for NMS are scheduled to ship next month and are priced as follows: LANDesk Manager 1.51 costs $1,495; LANDesk Virus Protect 2.1 costs $995; and StorageExpress 1.21 costs $4,995 to $12,495.

Intel will sell NMS integrated with its StorageExpress backup system as a separate product.

Novell plans fuller NetWare for the Macintosh. See page 47.

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News Shorts

IBM shake-ups continue

While **IBM**'s U.S. subsidiary, **Ambra Compnter Corp.**, introduced new models two weeks ago and cut prices en select notebook and desktop models last week, the European Ambra was pulled from the market. Officials cited strong sales ef products such as ValuePoint and the PS/t as the reason for pulling the plug. The two units are completely unrelated. IBM nfficials said they are happy with the U.S. Ambra's performance and have ne plans te close it. Meanwhile, IBM's cost-cutting measures continued last week, as the company handed out pink slips to 700 employees at the RS/6000 and Large Systems divisions, as weli as at Integrated System Solutions Corp. Futhermore, the company said that 1,200 of 6,200 employees in the Mainframe division would be laid off in the next month or so.

Sun seeks to bar NSA award

In a desperate attempt to hold on to its largest federal customer, **Sun Microsystems, Inc.** last week asked the U.S. District Court in Washington tn bar the **National Security Agency** from awarding a $200 million workstation contract to a rival vendor. A hearing had not been scheduled at press time. NSA had reportedly planned to announce the High Performance Workstatien II contract winner last Friday. Sun was originally awarded the contract last June, but the NSA later withdrew that award after rival bidders questioned Sun's performance en benchmarks used in the competition. NSA is believed to be one of Sun's biggest nustomers.

Software group cites piracy abuses

Japan, Korea and the People's Repnblic ef China are home to the worst software pirates in the world, according to a report issued last week by the **Business Software Alliance**. Dollar losses in Japan are the worst in the world, costing U.S. publishers more than $839 million last year. Korean pirates are estimated to have illegally duplicated $370 million worth of software in t993, while the Chinese pulled eff more than $189 million in software theft last year.

SHORT TAKES **Microsoft Corp.** said it will effer support lines fer **WordPerfect Corp.**'s WordPerfect fer DOS nsers who switch to Microsoft's Word word processor. ... **IBM** said it shipped 250,000 PowerPC 601 microprocessors in the chip's first four months. ... Eighteen software publishers, including **Microsoft, Lotns Development Corp.** and **WordPerfect**, have signed np for IBM's CD-ROM software distribution service. ... Following Lotus' recent announcement that it will ne longer provide major npgrades for its 1-2-3 spreadsheet on Unix platforms, **Applix, Inc.** has announced a $395 competitive upgrade program te its namesake spreadsheet. ... **IntelliCorp, Inc.** will announce a new set of object-oriented analysis and design tools next week with support fer rapid application deveiopment and a focus on business modeling. The new Object Management Workbench is the result of collaboration between IntelliCorp and James Martin & Co. ... **Andersen Consulting** will develop and install a new customer service information system for San Francisco-based **Pacific Gas & Electric Co.**'s 20,000 "non-core" customer accounts. The clent/server application may be scaled up in the future to handle all of PG&E's 7.7 million residential and business accounts. ... Patrick Smith is leaving **SHL Systemhouse, Inc.** to join Inglewood, Calif.-based Unix developer **Locus Computing Corp.**, and SHL Chief Executive Officer John Oitman said an alliance between the two vendors is in the works. Sources said SHL may acquire Locus.

Unix-based shops consider NT

By Ed Scannell and Stuart J. Johnston

While Microsoft Corp.'s journey to win respect for Windows NT in the Unix market is still an arduous one, the company appears to be getting a fair number of corporate Unix bigots to strongly consider its case.

The product appears to be having most of its success among Fortune 1,000 accounts at the departmental level. There, it is replacing various flavors of Unix on low-level servers that take care of file and print services. For the most part, NT has not posed much of a threat to Unix at the high end of the server market.

"We haven't seen NT as a displacement vehicle for Unix [at the high end] yet," said Barnaby Sheridan, a consulting analyst at Sequent Computer Systems, Inc.'s architectures and planning group, which sells both Unix and Windows NT-based systems. "For the most part, [users] are taking departmental applications like a Microsoft SQL Server or Oracle and implementing them in a straightforward way over to NT."

"Microsoft will first capture the small Unix server market. Don't forget there are users that run huge Unix boxes with clusters, and right now NT doesn't scale up the way Unix does," said Bill Cornfield, president of The Windows Support Group in New York.

Microsoft officials acknowledged that it has been difficult to sell Windows NT to the higher end of the Unix market because information systems managers evaluate the product in much the same manner as they evaluate mainframes.

Windows NT appears to be faring better lower down in corporate accounts where the evaluation cycles are shorter and its practical application is more obvious.

Sheridan and many IS managers said some Unix-based IS shops are considering Windows NT to empower small to medium-size workgroups in ways they find either difficult or impossible to do with Unix.

"We are using NT simply as a [computer-aided design] file server [and for] mail," said Martin Lindal, vice president of MIS and communications at Seattle-based Lindal Cedar Homes, Inc. Lindal added that his company's mission-critical functions, such as accounting, inventory and material listing, still reside on a pair of Hewlett-Packard Co. HP 3000 machines.

Saving dollars

Another reason some hard-core Unix IS shops are seriously examining NT is economics. With NT able to run across a variety of powerful RISC-based systems, some IS professionals say they stand to save substantially on porting costs, according to Michael Drips, a corporate developer at a large telecommunications company in Tampa, Fla.

"A lot of Unix shops are going to go this [Windows NT] way because it is cheaper. For instance, if you have 1-2-3 for Unix, it costs you $2,500 a seat [on a network], which is outrageous. It's why we are looking to dump a couple of our Unix applications," one corporate IS manager said.

Chicago chock-full of features

Microsoft's beta offers simple configuration, mobile features

By Ed Scannell and Michael Fitzgerald

■ Microsoft Corp. is expected to only hint at the breadth of Chicago, its follow-on to Windows, at its Hardware Engineering Conference in San Francisco this week. But sources familiar with its plans said the interface will deliver on its promise of Macintosh-like features.

Those features include the ability to support automatic hardware and software configurability as well as a nearly completed document-centric interface, the sources said. Users will also have the ability to search for files across a network, and mobile users will find improved features for swapping files quickly between desktop and portable computers.

Plug-and-play capabilities will include the so-called Advanced System feature with which users can set up their system for automatic configuration when they insert add-in cards or new software. The software will notify users of software or hardware conflicts with their current configuration.

The new version of Windows will provide simpler features for displaying internal information about a user's system, configuring device and memory priorities as well as optimize those variables.

The new document-centric graphical interface significantly enhances the three-dimensional effect and makes it easy for users to view. The company has also added a status bar, located at the bottom of the screen, with selections for Run, Tasks Lists, Arrange Windows, Arrange Desktop and Shut Down Windows. The program's shutdown feature is almost "exactly the same as the Mac's," one source said.

More with Explorer

The beta product also contains the Explorer, a built-in utility that searches for and locates specific data files and associated attributes across multiple networks. Explorer was demonstrated at Microsoft's developer conference in December, but as part of Cairo, which is Microsoft's next-generation object-oriented operating system.

Explorer in Chicago differs in that it is integrated into the plug-and-play aspect of the new operating system, according to a developer close to Microsoft.

The new interface also features a recycling bin icon in which users can store files that they have no immediate use for but also do not want to discard.

Another new feature is the Briefcase icon that allows desktop users going on the road to drag files and applications to the folder and copy those files to their notebook.

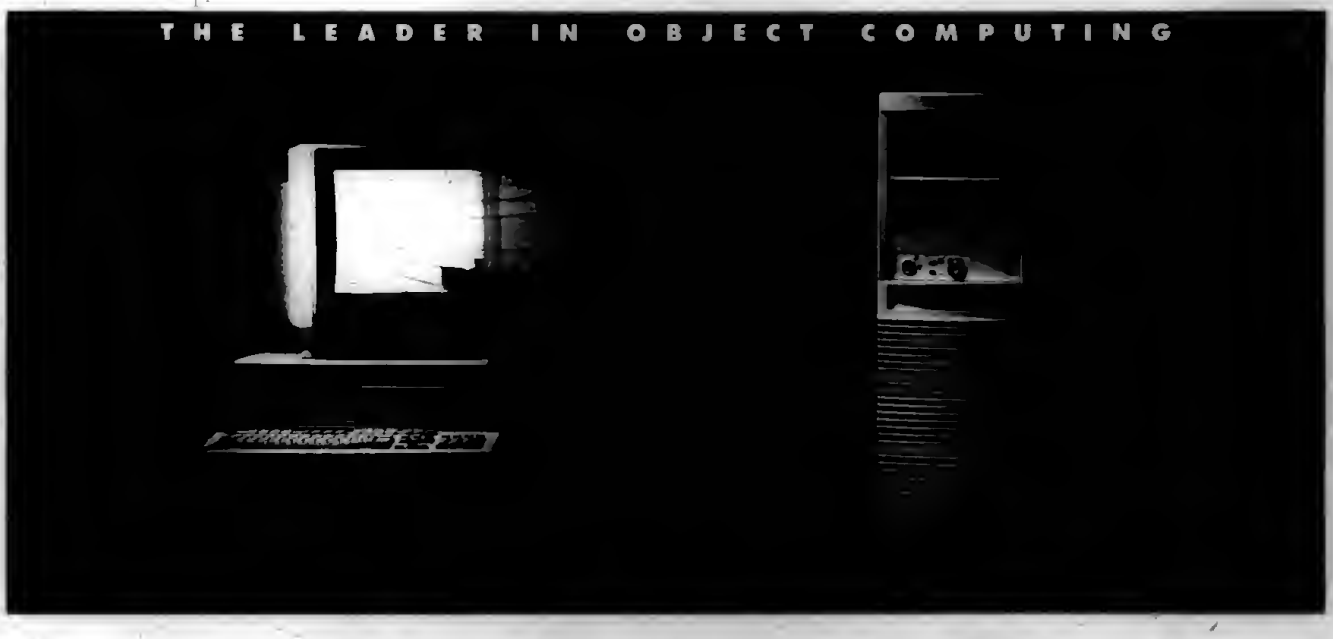
"The nice thing about [the Briefcase icon] is when you return from the road it takes the most current versions of your files and [restores] them back to where they were on the drive," one source said.

According to beta testers, the new beta appeared reasonably stable and had good performance running several best-selling 16-bit Windows applications.

One user said he had several applications open along with a video clip on a 66-MHz machine with 8M bytes of memory. "It ran pretty nicely. The same set of apps under OS/2 is a little choppy," he said.

"Some people have criticized Microsoft for not running 16-bit Windows apps as [virtual device machines], but if they can get this sort of performance, what difference will it make?" one source said.

THE LEADER IN OBJECT COMPUTING



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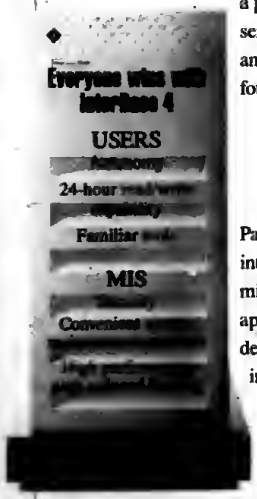

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What will keep track of 60 far-flung athletes from over 55 Olympic events—in detailed statistics

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Data warehousing: Hot property, tough sell

By Craig Stedman
ORLANDO, FLA

While interest in data warehousing appears to be spreading rapidly, information systems executives are still grasping for ways to sell their companies on the central repository concept.

Attendees at the Data Warehousing Conference here last week said the lack of tangible financial benefits such as head-count reductions or time savings pushes most IS organizations to start with small warehouse demonstration projects. Many rely on the operating units that would use the decision-support capabilities provided by a data warehouse to take the lead in lobbying corporate management on its business value.

"The need [for a data warehouse] is there," said Thomas Tinsley, director of IS management at the state of Tennessee's Department of Finance and Administration in Nashville. "The difficulty is going to be translating it into some sort of usable cost-benefit analysis. In fact, it's darn near impossible."

"It's not like doing a manufacturing system where you can put a clear-cut savings on it," added Joe Olszewski, assistant vice president of data processing at Maryland Casualty Co., an insurance firm in Baltimore. "When we say the company will be able to put out better reports on how it's doing, that doesn't give you much more than a warm feeling."

Big money

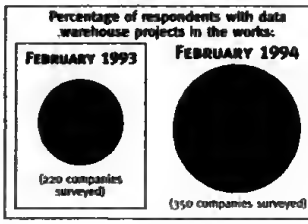
Olszewski estimated that it would cost about $1.5 million to build an enterprisewide data warehouse at Maryland Casualty, a hefty amount for a company with an annual IS budget of less than $10 million. "Some of the individual tools are $150,000," he noted. "We're talking a big commitment."

"There is a leap of faith that has to happen" with a data warehouse, said John Sweeney, director of information management resources at Bank of Boston. "I don't think you can go out and justify it from a cost-savings point of view. It's more the opportunities that it creates for you" by providing end users with improved access to corporate data.

Warehouse on fire

A recent Meta Group, Inc. survey of its clients showed a meteoric rise in the number of companies working on data warehouses compared with a year ago

Percentage of respondents with data warehouse projects in the works:



People costs

While Meta Group analyst Aaron Zornes calls data warehousing "the full employment act for database administrators," several IS executives said they do not expect to add staff as their companies proceed with warehouse projects. "I couldn't sell my management on that," said Rob Collins at Westinghouse Savannah River. If more staff becomes necessary, a business department that is backing the warehouse design "has got to be willing to include that as part of their total cost" projection rather than allocating it to IS, said Joe Olszewski at Maryland Casualty.

Sweeney added that he spends most of his time "marketing the concept to other people" at the bank, both on the business side and in the IS department. A pilot project is being developed for use within IS and will be followed later by a second pilot that will involve an undetermined business unit, he said.

Not all IS shops are finding it hard to get approval for a data warehouse. Kevin Goyena, IS project manager at Van Waters & Rogers, Inc., a Kirkland, Wash., chemical distributor, said senior management quickly became interested in opening up data to the company's salespeople.

Selling the system

"What we really stressed is that it's an opportunity to collect data off multiple systems and put it all on one platform" that sales could access, Goyena said. Van Waters & Rogers plans to go live with a pilot warehouse for its Portland, Ore., sales area in late March and expand across the U.S. by year's end, he added.

Aaron Zornes, a Meta Group, Inc. analyst in Burlingame, Calif., noted that some IS organizations are trying to generate backing for a data warehouse by building small pilots and inviting users in to test-drive them. "You get users to sign up for it and go to upper management, rather than the IS people proposing it," Zornes said.

Several executives who have succeeded in getting approval for such projects agreed that getting support from business units is crucial.

"The job is to plant the seed," said Rob Collins, advanced technology analyst at Westinghouse Savannah River Co. in Aiken, S.C. The IS department there provided access to small pilots "within a managed situation, so that users could go back to their own groups and market the concept for us," he said.

"If you can't get a partnership between IS and the business side, my advice would be to wait until you can," said Mark Johnson, manager of data warehouse architecture and planning at US West Communications, Inc. in Denver. Johnson described warehousing as "an enabling capability" that depends on users "to hook onto the concept and pull it forward."

Tools to build with

Building a data warehouse remains a do-it-yourself project. There is no lack of warehousing tools to choose from, but they are mostly point products, and responsibility for combining them into a useful framework belongs to the IS department.

"The weight is on the shoulders of the IS guy to design and build this thing, and that's scary," said Sean Kelly, senior telecommunications business manager at Dublin-based Telecom Eireann, the Irish phone company. "IS is behind the eight ball on this because the pieces are there, but it's not knit together, and the expertise to do that is rare."

Some IS executives said they view the integration requirements as a fact of client/server life. John Sweeney, director of information management resources at Bank of Boston, said it should not be a problem "as long as the tools play together." He added, though, that vendors "are not 100% there yet" on interoperability.

Meta Group analyst Aaron Zornes noted that building a data warehouse is made more difficult by the lack of robust administration tools that will not be remedied until 1995 or even 1996. IBM comes closest to offering a full data warehouse framework, "but it's IBM-centric" and requires OS/2 on the desktop, Zornes said.

—Craig Stedman

Client/server

Vendors bond on net backup

By Stephen P. Klett Jr.
BOSTON

Users facing the arduous task of managing data backups in client/server environments received a boost last week at Networks Expo. A vendor consortium announced a standard for data interchangeability across multiple platforms and operating systems.

Called System Independent Data Format (SIDF) Version 1.0, the standard evolved from Novell, Inc.'s Storage Management Services (SMS) specification. With SMS-compliant products, users do not need to upgrade backup software when a new version of NetWare is released, and all nodes on the network — such as Unix- and Windows-based clients — can be backed up to a Novell server (CW, Dec. 13, 1993).

SIDF takes this one step further by going outside the NetWare realm and allowing users to interchange tape, media and files among different backup software packages. For example, data stored with a Unix backup program can be read by a NetWare-based device and vice versa.

While analysts said it would take at least a year for users to see the real benefits of SIDF — only six compliant products are currently shipping — they were upbeat about the standards potential.

"Storage management in client/server environments is an onerous task, but this announcement moves the industry forward in terms of reducing user pain," said Chris Christiansen, an analyst at International Data Corp. in Framingham, Mass.

More to look forward to

Observers said the development of the SIDF standard could lead to bigger and better things for users, such as a standard backup interface to all operating systems and the ability to put backup on any server in a heterogeneous environment, regardless of what operating system it hosts. Several vendors are working on these capabilities, including Legato Systems, Inc. and Cheyenne Software, Inc.

Group effort

More than 50 vendors contributed to the SIDF specification, including Conner Peripherals, Inc., Digital Equipment Corp., IBM, Cheyenne Software, Legato Systems, Palindrome Corp., Microsoft Corp. and Sun Microsystems Computer Corp.

Meanwhile, the European Computer Manufacturers Association (ECMA) in Geneva has accepted SIDF 1.0 and is in the process of submitting it to the International Standards Organization for approval as an internationally recognized standard.

Users were impressed by the amount of vendor cooperation displayed in making SIDF a standard but said they would still not take switching backup vendors lightly.

"I wouldn't make a change just to have a tape format that everyone backs — backing up one network with different systems doesn't make sense [for us]," said Michael Kaunitz, network administrator at St. Paul Reinsurance Management Corp. in New York. "It would take a lot to convince me to try it."

The Apple Report On PowerPC

Number 3 – Applications Accelerated For PowerPC

If you buy a Macintosh today, can you upgrade it tomorrow? In many cases, yes. Just look for the "Ready for PowerPC upgrade" sticker on the box.

On average, a Macintosh with PowerPC technology achieves two to four times the performance of 68040 and 80486 machines running the same programs.

If you use applications that do floating-point mathematical calculations, your performance levels could be up to ten times those of the same program running on a 68040 machine — and several times faster than the fastest Pentium system–based computers.

A Macintosh with PowerPC offers unprecedented compatibility between Macintosh, MS-DOS and Windows, thanks to an emulation program called SoftWindows, which licenses Windows code from Microsoft.

For more information about Macintosh with PowerPC, call 1-800-732-3131, ext. 150. We'll send you a free copy of *PowerPC Technology: The Power Behind the Next Generation of Macintosh Systems*. In Canada, call 1-800-665-2775, ext. 910.

The new family of Macintosh* computers with PowerPC™ chips will run virtually all Macintosh system–based software and most current programs for MS-DOS and Windows operating systems.* So no matter what computing environment you're working in now, you can migrate to a more powerful desktop computer without losing your investment in your current software.

Accelerated for Macintosh with PowerPC

But the real benefit of PowerPC technology will be seen with new applications optimized to take advantage of the chip's advanced capabilities.

These applications, often called native applications, will offer two to four times the performance of programs available for the fastest Macintosh computers today. Developers writing native applications say that these applications perform at levels better than their Windows counterparts running on Intel Pentium system–based computers.

Major developers on board.

Right now, the world's leading developers are updating their most popular and memory-intensive programs to take full advantage of PowerPC technology.

In fact, Apple has been working closely with more than 200 major third-party developers since 1992 to create powerful new versions of their applications.

And since software development kits became widely available in January, hundreds of additional developers have begun the move to PowerPC.

PowerPC technology enables them to incorporate new levels of speed and functionality into their applications for the Macintosh system. Developers everywhere are eager to exploit these new capabilities.

What programs will be ready?

While a Macintosh with PowerPC technology will run virtually all of your existing Macintosh system–based programs, the real benefit of PowerPC will be with applications optimized to take advantage of the chip's advanced capabilities. More than 50 of these native applications will be available in the first half of 1994. Here are some of them.

ACI 4th Dimension	*Frame FrameMaker*
Adobe Dimensions	*Insignia Solutions SoftWindows*
Adobe Illustrator	*Microsoft Excel*
Adobe Photoshop	*Microsoft Word*
Adobe Premiere	*Specular Infini-D*
Aldus FreeHand	*Strata StudioPro*
Aldus PageMaker	*VideoFusion VideoFusion*
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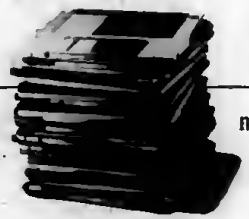

Do more in less time.

What will the advanced capabilities of native applications mean to you? You'll spend significantly less time waiting for your computer to redraw or recalculate or re-anything. That means you'll have more time to create and refine your work, to apply new concepts, to test options.

You can also expect to see new kinds of applications—software that is both more intelligent and easier to use.

Developers will be exploring new features in areas such as intelligent help, 3-D design, video, animation, speech recognition and text-to-speech conversion.

Many of these new functions simply wouldn't be practical without the superior processing capabilities of a RISC chip and innovative Macintosh technology.

Why RISC?

The new generation of Macintosh computers will be the first personal computers with RISC (Reduced Instruction Set Computing) chips—ultra high performance chips that were previously available only in workstations.

(In fact, many workstation developers are now writing applications for the Macintosh platform for the first time.)

RISC chips are smaller and less complex than comparably powered CISC chips, so they cost less to produce—which means that Macintosh computers with PowerPC technology can offer a significant price/performance advantage. But more important, they'll give you an unprecedented new kind of power.

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Apple

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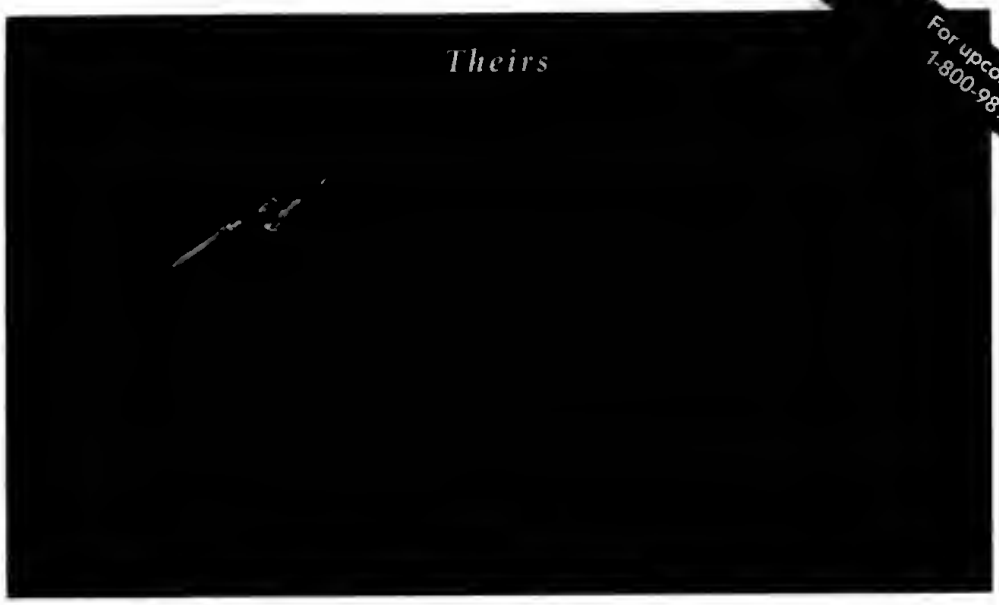

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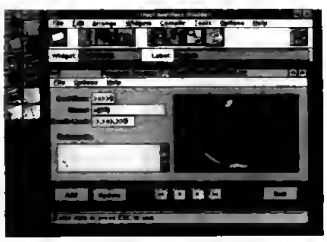

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Business objects think Small(talk)

By Melinda-Carol Ballou

Easel Corp. will begin shipping a tool next month that makes it easier to create object-oriented applications that incorporate business rules and data.

Synchrony is a design and analysis tool based on the Smalltalk programming language that lets developers build and manage objects that represent a business. Synchrony is integrated with Easel's Enfin development tool. This allows programmers to take their Synchrony business objects and generate source code using Enfin.

Synchrony's Smalltalk code-generation features make it different from other object-oriented design and analysis tools, which have fairly strong diagramming and modeling functionality but require developers to manually build classes, said Mike Young, senior systems engineer at Charles Schwab & Co., an investment firm based in San Francisco.

A good match

Smalltalk is a popular language for object-oriented development because of its built-in support for object features like inheritance and encapsulation. "[Synchrony] diagrams can be brought directly into the Enfin environment so you can start using those immediately," Young said. "If you change the source code, the drawing can be updated from that so you can also reverse-engineer [code]."

He added that it would be "very easy" to diagram business relationships by taking business services and attributes, dropping them on classes and pointing and clicking to set up relationships between business objects. For instance, a programmer building a customer account in a bank-oriented transaction might build a customer class and link that account with the customer's stock-oriented transactions via balance fields using the business objects, Young said.

The existence of these objects lets developers reuse those modules of code whenever they create an application that requires those business functions, which saves considerable time, Young said.

According to industry analysts, tools like Synchrony will make Smalltalk viable to a much larger segment of the market. This is significant because there are drawbacks to using hybrid object-oriented languages such as C++, they said.

"With Smalltalk, programmers must adhere to object-oriented progamming techniques, but with C++ they are merely free to do so and often don't," said Tim Harmon, an analyst at Meta Group, Inc., a consulting firm with offices in San Francisco. "C++ is a lot harder to learn than Smalltalk, which slows the adoption of object-oriented techniques."

Only 2% of development is currently done using Smalltalk, but that may change as IBM pushes its Distributed System Object Management (DSOM) technology. Smalltalk will plug in more readily to DSOM, Harmon said.

ParcPlace Systems, Inc., Hewlett-Packard Co. and Digitalk, Inc. are currently pushing Smalltalk tools, and IBM will ship its own Smalltalk-based Visual AGE tools this spring.

Synchrony will ship on OS/2 next month for $6,995, on Windows in April for $4,995 and on Unix later in the year. Unix pricing will be announced when that version ships.

In Synch

Synchrony includes the following:

- **Object Browser to edit and delete new classes and their attributes, services and relationships with other classes.**
- **Object Diagrammer to graphically represent the classes.**
- **Attribute Editor to modify class attributes.**
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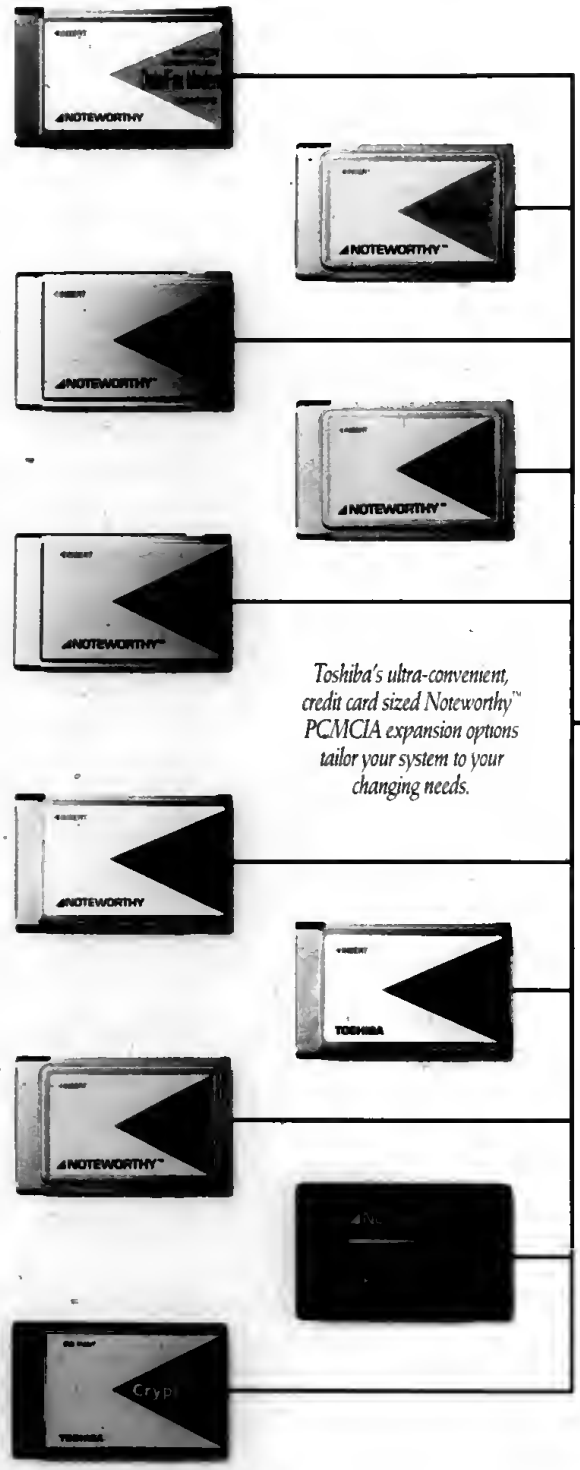

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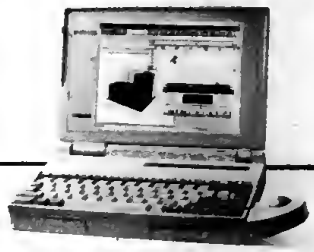

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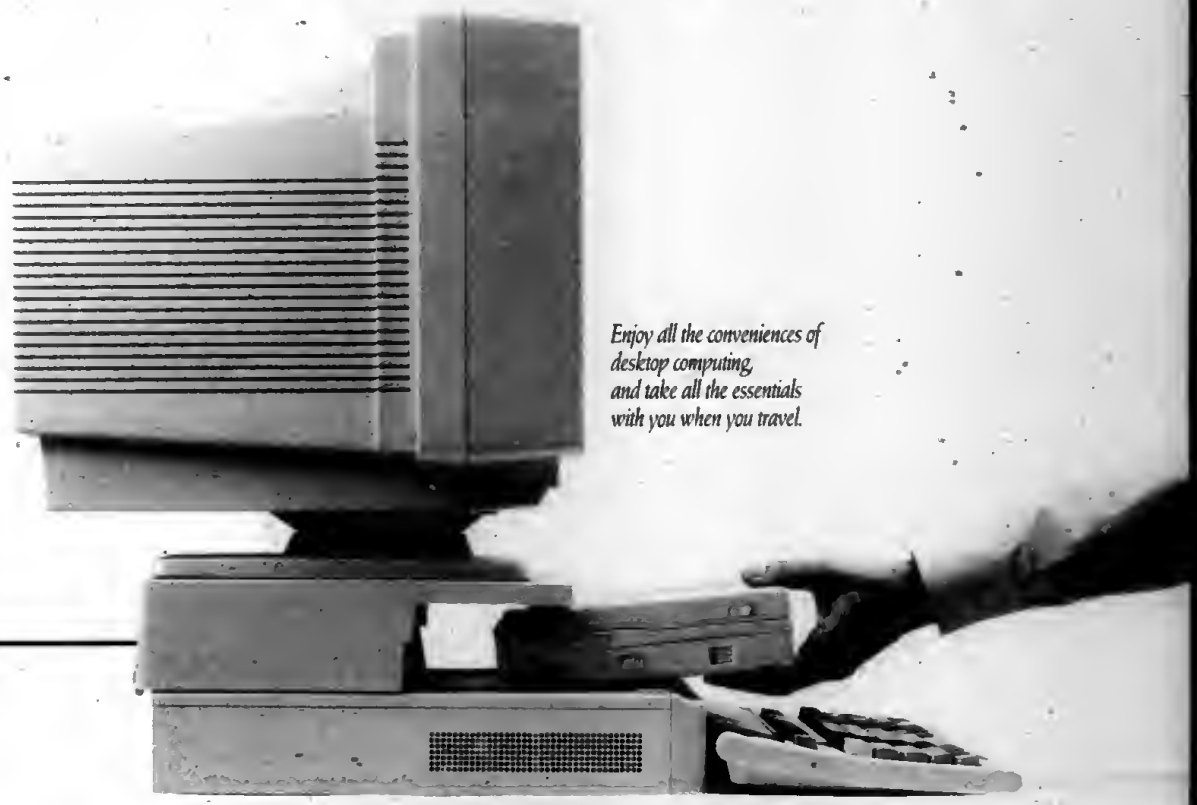

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Procurement

CONTINUED FROM PAGE 1

it buys things — from computers to toilet seats to space telescopes. IS technology — because of its complexity and its rapidly changing nature — has proved especially troublesome for Uncle Sam, whether buying a handful of PCs or multibillion dollar custom systems.

"What we buy costs too much, [the process] takes too long, and we don't even get access to some of the best technology because many companies refuse to do business with us," said Roger W. Johnson, administrator at the U.S. General Services Administration (GSA), which is chartered by law to oversee the government's IS purchases.

Faced with procurement lead times frequently measured in years, users are often saddled with technology a generation or two out of date, Johnson said. "A CEO of a large technology company said to me, 'Roger, I hope when you go [to the GSA] you don't change the rules, or I'll lose my only market for excess and obsolete inventory.'"

The system also takes its toll on managers at user organizations, according to Roger Cooper, deputy assistant attorney general for information resources management (IRM) at the U.S. Department of Justice. He said he spends 25% of his time on IS procurement, time he should spend on managing IS operations. "If you are trying to do big systems in the government and you are not a procurement expert, you will almost inevitably fail," Cooper said.

Army's David Borland: *'Let's not mess with the rules anymore. We're just beginning to understand them.'*

Cooper and other IS managers said that struggles with the procurement machinery — and worries about tripping up on this or that regulation — consume time that would be better spent on accomplishing the agency's mission.

Procurement procedure OK

Despite these and other criticisms, not all observers agreed that federal IS procurement practices need a top-to-bottom overhaul. "I don't think the system is as broke as people make it out to be," Dornan said. "I don't see radical change as either possible or necessary."

For example, Dornan pointed to the controversial bid-protest process and to a popular perception that every major federal buy gets mired in wrangling among the parties. He said that out of 10,000 or so information technology procurements that were subject to protest in 1992, just 123 resulted in protests that had to be settled by judicial process, and 78% of those were decided in the government's favor.

The number may be small, but it is the largest and most visible deals that get mired in controversy, observers said.

While opinions differ as to where the system is faltered, numerous factions are hell-bent on fixing it: Thanks in large part to Vice President Al Gore's "reinventing government" crusade, which devotes considerable attention to the topic, procurement reform is all the rage here.

Examples of this include the following:

- Several procurement-reform bills are pending in Congress. One would raise the threshold for streamlined small purchases from $25,000 to $100,000, reform the bid-protest process and simplify in various ways the interaction between buyers and sellers.
- The Office of Management and Budget recently announced that it will start requiring contracting officials to explicitly consider a vendor's performance on earlier government work before granting new contracts. It also is developing guidelines to permit greater dialogue between buyers and sellers during the procurement cycle, and it plans to curtail the use of vendor audits by the government and requirements for vendors to provide internal cost data.
- The GSA is pursuing a number of initiatives, from a fundamental overhaul of procurement philosophy to electronic commerce. On April 1, a bulletin board system will begin listing prices of 150,000 PC products from 437 vendors. The aim is to increase competition and reduce administrative burdens on buyers and sellers.

According to Joe M. Thompson, the GSA commissioner for IRM, electronic shopping will lead to reduced prices by allowing more vendors to participate in the process and by helping to maintain a competitive edge by enabling vendors to lower their prices easily and more quickly.

Without such a system, in a recent 12-month period the government bought 17,000 copies of WordPerfect 5.1 at $262 per copy. Meanwhile, according to the U.S. General Accounting Office, it was available to the public at discount outlets for $244 and to the state of Texas for just $223.

Terry Miller, president of Government Sales Consultants, Inc. in Great Falls, Va., said many of the reform initiatives miss the mark. He said most procurement snafus are not due to inherent flaws in the system but to errors by officials who are poorly trained in IS procurement. "Most agencies don't understand you can't use the same guy to buy kerosene" and LANs, he said. "We don't need a new piano; we need a better trained pianist."

"Let's not mess with the rules anymore," agreed David Borland, director of the U.S. Army's Information Systems Selection and Acquisition Agency. "We're all just now beginning to understand them. If we keep on changing them, we'll be constantly trying to learn them while we do business."

Nevertheless, the consensus in Washington seems to be that reform should focus on the rules. "We have bad procurement systems and good people," Thompson said.

Asking questions

Performance-based procurement is a theme that knits together many of the current reform efforts. It is based on a philosophy that federal IS users and the public will generally be better served by a procurement framework that focuses on results, rather than adherence to regulation minutia. The GSA is moving to embed that concept in its delegation of IS procurement authority to other agencies.

When an agency comes to the GSA seeking that delegation it is usually handed the money — no questions asked, Johnson said. "We should — and will be — asking, 'Are you going to be able to process claims with fewer people? Will you improve customer service? What are the results?' We haven't been delegating; we've been abdicating."

Federal IS officials would like to apply that principle within their agencies, but they concede that measuring performance is not as easy as filling out a procurement checklist.

"We're trying to work the problem right now," said Jane L. Sullivan, director of IRM at the U.S. Department of the Treasury. "We want to delegate [procurement authority] and empower our bureaus more where their performance has proved itself. How can we set up measures to do that? How do you define performance? It's a hard problem, but we have to do it."

The Army marches to a different beat

The Army has a reputation for running a top-notch procurement shop in its 120-person Information Systems Selection and Acquisition Agency, which now manages $6 billion in IS contracts. Much of the credit goes to its director, David Borland, said Terry Miller, president of Government Sales Consultants.

"It's the best buyer of [IS] today," Miller said.

Borland shrugged off the compliment and said he has no silver bullet, just management stability and old-fashioned leadership. He has been at the agency 18 years and his eight deputies combined have some 100 years of tenure there, he noted.

"We have knowledge of the market," Borland said. "We know the players and they know us. We never surprise anyone. It's like we're at a dance and everyone knows the steps." He visits key executives at vendor companies constantly, he said, and he rarely gets a formal protest over a contract.

Not all of the credit

Miller said there are other explanations for the agency's reputation for having satisfied users and nonlitigious vendors. He said it is one of just 15 procurement shops — out of some 2,500 in the government — that buys only information technology.

It is also one of the few that combines contracting, legal and technical people under the control of one person. Miller said he recently saw a request for proposals from another agency that was put together by user representatives in Alabama, buying specialists in Tennessee and lawyers in the Pentagon. "That's a recipe for disaster," he said.

— Gary H. Anthes

IS purchasing challenges government

In a recent Information Technology Association of America survey of 24 senior government IRM officials, 67% said they thought the climate for IS procurement reform had improved. Only 25% said no; 8% said maybe. To understand the challenge of federal procurement, it is helpful to look at some of the following numbers:

▶ The federal government buys $200 billion worth of goods and services annually, using 142,000 procurement officials armed with 4,500 pages of regulations in 2,500 procurement shops. It spends $25 billion on information technology — an amount that is growing steadily by $1 billion a year. *Sources: National Performance Review; Federal Sources, Inc.; Government Sales Consultants, Inc.*

▶ "A vice president at DEC told me a few years ago that if we just took the boilerplate — 200 pages of requirements for things like small and disadvantaged business plans and 'Buy-American' plans — out of our terms and conditions, he could cut all of his bids by 10%," said Roger Cooper, deputy assistant attorney general for IRM at the U.S. Department of Justice.

▶ In the first nine months of fiscal 1993, vendors returned $1.4 billion in payments received from the Pentagon, saying they had not submitted bills and were not owed the money. *Source: Sen. John Glenn (D-Ohio), Jan. 27, 1994.*

▶ A Defense Department Acquisition Streamlining Panel recently completed a congressionally mandated perusal of Pentagon procurement practices. Its recommendations filled 1,800 pages.

— Gary H. Anthes

Briefs

HP results rocket

Citing strong demand across its computer product line, Hewlett-Packard Co. last week posted first-quarter net earnings of $368 million, a 41% increase from the same period last year. Revenue in the period ended Jan. 31 grew 24% to $5.6 billion, the Palo Alto, Calif., vendor said. HP said orders in its computer business grew 23% in the period, led by printers, PCs, workstations and network and systems management products.

Microsoft takes over

Microsoft Corp. has agreed to acquire Softimage, Inc., a Montreal developer of two- and three-dimensional computer animation and visualization software in a stock deal valued at $130 million. Softimage's products are used by film studios and animation houses in post-production integration of visual images, text, sound and special effects.

Acquisitions up

Merger and acquisition activity in the information technology field jumped 35% in 1993, totaling 713 transactions, according to Broadview Associates, a Fort Lee, N.J., investment banking firm. Value of the deals was estimated at $28 billion, a 33% increase from 1992.

SHORT TAKES Legent Corp. has invested about $2 million in Software Clearing House, Inc., a privately-held Cincinnati-based developer of distributed network systems management software. ... Aldus Corp. has agreed to acquire Compumation, Inc., a State College, Pa., supplier of network-based print and image management systems. Terms were not disclosed. ... WilTel Communications Systems, Inc. has acquired the customer premise equipment sales and service operations of BellSouth Communication Systems, Inc. in the 29 states outside of BellSouth's region.

ASK CEO's exit has users wary

By Kim S. Nash

The unexpected resignation of The ASK Group, Inc.'s chief executive officer has left ASK users and analysts wondering what else can happen to a firm already weighed down by multimillion-dollar losses, layoffs and slipping market share in several key product areas.

After CEO Pier Carlo Falotti cited "personal reasons" for his abrupt resignation two weeks ago, Santa Clara, Calif.-based ASK quickly contacted user group leaders. The message: Don't panic. Marketing and development plans erected by Falotti during his 17-month reign will be carried out, said Chief Financial Officer and acting CEO Les Wright.

Pier Carlo Falotti's resignation as ASK's CEO 'comes at an unfortunate time'

Looking for change

"I'm still waiting to see the result" of ASK's year-old corporate reorganization, said Michael Campbell, president of the ASK User Society (ASKUS), a 550-member group of ASK applications users. He said he has not seen any changes — positive or negative — so far.

Falotti's departure throws another shadow across ASK, which has reported losses for five of the last eight quarters (see chart). The firm comprises three companies: Ingres (database and tools), Data 3 (applications) and ASK (manufacturing applications).

Large losses

After $20.5 million in losses so far this fiscal year, ASK could have a better third quarter. Kmart Canada Ltd. and Oppenheimer & Co. recently signed large contracts for the Ingres database, according to a source briefed by ASK. The deals were only two of a few pending agreements that did not come through in time to make fiscal second-quarter tallies, contributing to a $13.7 million quarterly loss.

The change "comes at an unfortunate time," said Donald A. DePalma, an analyst at Forrester Research, Inc., a consulting firm in Cambridge, Mass. Ingres had become more audible amid the marketing screams of Sybase, Inc. and Oracle Corp. during the past six to nine months, DePalma said, but losing a CEO is bad news that rivals will likely point out to prospective customers.

"We have a difficult time selling [ASK] products," said Dick Couron, president of DC Systems, Inc., a software consulting firm in Dallas that builds applications for fuel companies. About 18 months ago, the company branched out from being an Ingres-only reseller to offering Sybase and Oracle products, too. "I'm not going to put the future of my company on the assumption that [ASK] will be around tomorrow," Couron said.

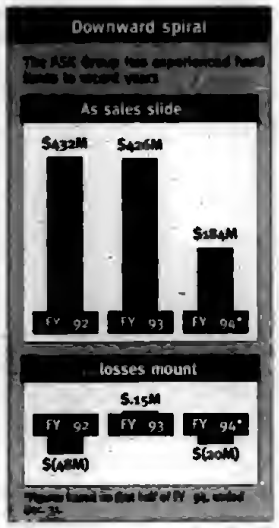
Praise and censure

Some of DC Systems' problems highlight the fact that historically, ASK has been praised for fine technology but bashed for weak marketing. The characterization still applies, observers said, but some users noted that Falotti had upped ASK's visibility.

For example, ASK has tripled its sales force and stressed the need to "make the customer happy." Falotti also streamlined business units and added technical support workers.

As a result, some users are guardedly hopeful that ASK will overcome. "This is a hump in the road, not a disaster," said Kitty Weaver, president of the North American Ingres User Association (NAIUA). She said the 650-member user group is generally optimistic about ASK's prospects.

Information systems shops "should look at the product, not at the CEO," said Weaver, who is also a systems administrator at the National Center for Atmospheric Research in Boulder, Colo. She said her company is impressed with ASK's 4GL for Windows, a graphical development tool that doubles as the first piece of the firm's OpenRoad strategy. OpenRoad is ASK's plan to build tools that can be used to create applications for rival databases.



ASK tops competitors in some ways but lags in others. In December, ASK was first among the Big Four database makers to ship a replication product. However, the company did not release a NetWare version of Ingres until this month, while Sybase and Oracle have been shipping databases for Novell, Inc.'s operating system for more than a year.

One potential saving grace for the firm as a whole is that most of its license revenue comes from sales of relational databases, said Curt Monash, president of Monash Information Services, a New York consulting firm.

"Ingres will continue to generate money for ASK, but the question is whether that's enough to sustain the company, especially if new license revenue is not growing," he said.

Falotti ASKed user groups to unite

Much as he tried to streamline ASK itself before resigning, former CEO Pier Carlo Falotti was pushing the firm's three major user groups to unite.

While users of ASK and Data 3 applications and the Ingres database said they are considering unification, they have not jumped at the idea.

ASK "envisions this unification, but they have to keep in mind how different the products are and the directions individual groups are going in," said Kitty Weaver, president of NAIUA.

A single group is enticing because a coherent user voice might have more impact on ASK's decisions, said Michael Campbell, president of ASKUS. However, the groups will not become one if a majority of their members do not want to, Weaver and Campbell said. Meanwhile, communication among the groups has improved, with members scheduled to attend one another's meetings this year and next.

Money is one driving force behind ASK's desire to meld the groups. The company would no longer have to send executives and engineers to multiple annual conferences. Plus, allocating time and resources to a single large meeting each year would be easier than orchestrating separate events.

While the groups weigh unification, financial independence from ASK is first and foremost on the minds of the presidents of the two largest organizations. For example, ASK currently pays NAIUA $40 for each person who goes to the group's annual conference.

—Kim S. Nash

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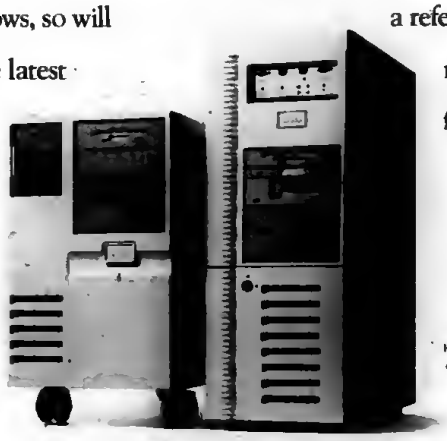

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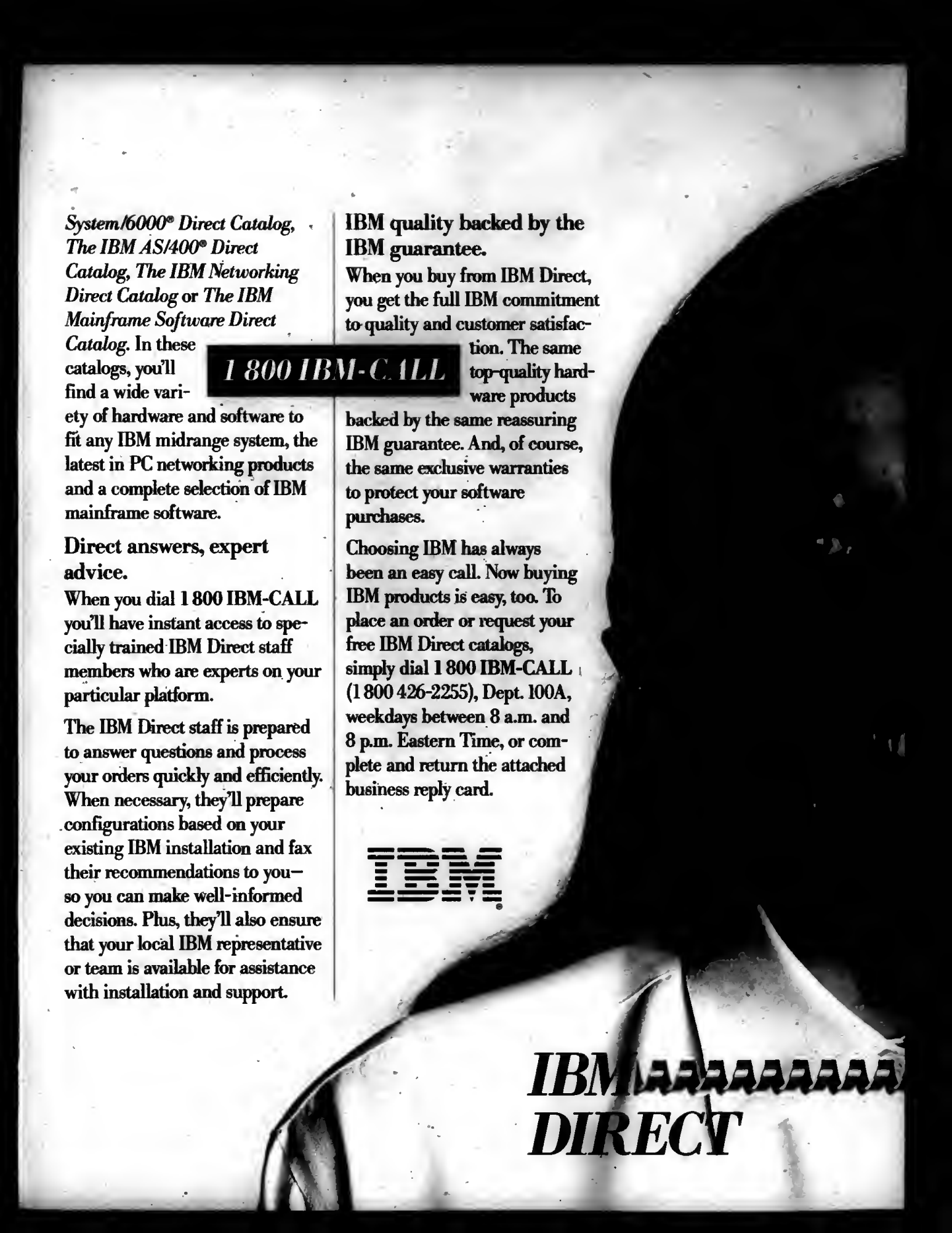

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Howdy, partner

The vendors want to be your partner. They have a vision whereby together you'll navigate the turbulent waters of client/server technology, with them serving as pilot to steer you away from shoals and reefs.

The manifold expression of this desire to partner is the vendors' consulting units. They range in size from basement operations to full-blown divisions. Most vendors proudly point to the profitability of their consulting divisions.

The consulting sales pitch usually sounds like this: "Our job is to serve our partners with the best available solutions. And if that means selling you a database other than the one we make, that's just fine 'cause that's what friends are for."

Microsoft, however, seems to have taken a different tack. Its consulting effort is similar in that a) it is big — approaching 500 people, with plans to grow to 2,000 in a couple of years; b) it wants to be your friend and partner; and c) it is at the vanguard of the company's drive to capture the hearts and minds of corporate IS.

That's where the similarities end. The consulting division has fiscal responsibility only to cover its costs, like a nonprofit group. That's the way Microsoft will keep it for the foreseeable future.

More important, the division has little if any interest in selling you anything other than Microsoft products, only it'll tell you this right up front. As division chief Bob McDowell puts it, "My card and the card of every one of our employees says 'Microsoft' on it. We seek to enhance our customers' environment with Microsoft solutions."

I don't know if that is refreshing or naive or honest or arrogant or what. Probably a bit of each. But it is certainly a different approach.

To be sure, what Microsoft needs is a different approach for addressing IS. There is plenty of evidence, anecdotal and otherwise, that suggests Microsoft is not viewed as a company that gives much of a hoot about corporate IS' internal operations and, therefore, its challenges. Microsoft is often seen as lacking patience with IS, with not understanding that the IS sales cycle is very different than selling shrink-wrapped software at superstores.

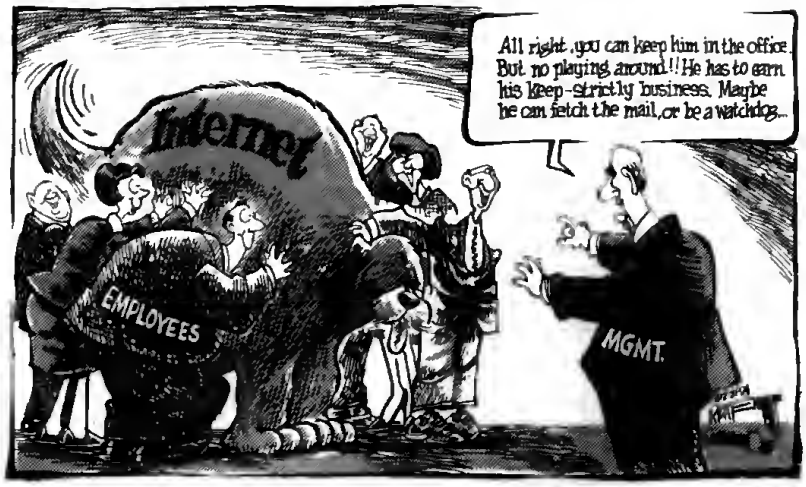
Microsoft seems befuddled and frustrated that IS is taking so long to evaluate Windows NT, let alone mark it as a server standard.

To his credit, McDowell, a former IS director, seems to understand these issues. And he swears that Microsoft is "betting part of the farm" on NT.

That's the kind of message that his boss, Bill Gates, needs to get behind in a more convincing way. The slow roll of NT and pronouncements from Microsoft headquarters that in the future, the majority of the company's income will be derived from the consumer market has many people wondering just what kind of enterprise commitment the company has.

Bill Laberis

Bill Laberis, *Editor in chief*



Stocking health care warehouses

Hospitals have three ways to tie together data from different departments ["Drug data fails to connect," CW, Jan. 17]: Replace the existing systems with an integrated hospital information system, connect the stand-alone systems to one another, or download data into a central data repository.

The first solution is expensive and time-consuming, the second complicated and difficult to maintain. Only the third option — creating a data warehouse — is quick, affordable and straightforward. Several firms provide such repositories along with the software to access and analyze stored data.

This is just another example of how information technology can play a pivotal role in health care reform.

Warren S. Demurjian
John G. Napoli
SMI, Inc.
Port Jefferson, N.Y.

Saying 'no' isn't always so easy

"Just say NO to documentation" [CW, Jan. 17]? Oh, if only it were that simple! If I had a nickel for each time I've found myself in some quagmire in which a simple note left here or there would have helped me find my way back to solid ground, I'd be reading my *Computerworld* from my yacht somewhere near Tahiti.

Just because programmers don't like writing documentation doesn't mean it isn't useful to end users and other folks. Regarding shelf life, it's part of the job to update the documentation when you change something, even though you might not like doing it. It's too bad programmers have a part of the job they don't like, but hey, welcome to adult life.

And as for implying that even documentation for training purposes is a waste of time, we all know what happens when users are not trained properly — the best design for a system is rendered garbage in a short time.

Naomi Rubin
Albany, N.Y.

Systems offer the spice of life

I certainly didn't get your OS/2 Shell Game cartoon [CW, Jan. 24]. You have sunk to the depths of name-calling in your attempts to scuttle OS/2.

Every major operating system has several flavors: You can get NetWare in 2.x, 3.x and 4.x versions; you can get Windows in 3.1, NT, Windows for Workgroups and Cairo (soon); and IBM's mainframe operating systems are available in a dizzying array of varieties.

Your magazine has too many good news articles to be blemished by editorial content such as this nonsense.

Bruce Greenblatt
Novell, Inc.
San Jose, Calif.

The Postal Service: A growing burden

Bill Laberis' "Post Mortem" [CW, Jan. 24] raises some very valid concerns regarding the U.S. Postal Service. I would like to point out an issue he missed — namely, that the government itself is one of the post office's largest customers.

Aside from the regularly scheduled mailings of hundreds of millions of IRS forms, Social Security checks, federal and military pension and payroll checks and government publications, all of which move at the expense of the taxpayers, consider the humble franking privileges enjoyed by our elected officials and their minions.

Quite apart from the recent revelations of creative financing developed using the post office by such luminaries as U.S. Rep. Dan Rostenkowski, these folks have the unlimited right to fill our mail boxes with all manner of propaganda without paying a dime.

Geoffrey K. Wascher
Troy, Mich.

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Getting to know you

Ellis Booker

The heady hype over the coming information highway has pressed the privacy alarm — again.

Consumer and citizens' rights groups have declared that whatever its structure, the future information highway *must* protect the sanctity of our privacy, our anonymity.

(Not that any of this is new. "As long as you didn't get on a list, nobody knew you were here," my paternal grandfather used to say. He immigrated to the U.S. in 1910, long before American Express installed its first computer or the Internet received its first data call.)

This well-meaning concern over privacy is silly.

First, I guarantee there will be hundreds if not thousands of "anonymous" services — including, yes, adult text chats and adult videoconferences. There is already a huge market for such private transactions.

But I'm equally convinced that the innovations on the information highway, the things that will change the economy and society, will depend on smart systems, ones that know us, our individual tastes and preferences.

Take movies on demand. Sure, it's convenient to order a movie from the PC/TV in one's living room and eliminate a car ride to the video store. But I suspect my business will ultimately go to the video-on-demand company with a database that is aware I'm an Orson Welles fan and that will alert me each time a new multimedia documentary on Welles becomes available.

The information highway will have to know us, help us. Otherwise, how can we possibly hope to filter through the torrents of information, news and research that it will make available to us?

But can "being known" backfire? Of course.

Robert Ellis Smith, publisher of the "Privacy Journal" in Providence, R.I., paints one particularly ugly example: A woman buys diapers and then has a miscarriage. Months later, via her interactive terminal, she starts receiving commercials showing bouncing babies. "Can you imagine the Orwellian, kafkaesque messages?" he asks.

The well-meaning concern over privacy on the information highway is silly.

Yes, horrible. But it already happens today. It's called direct mail. And the fact is, this error will be fixed much faster when the woman can send a shutoff message through an electronic network.

I'm also confident that through legislation (or plain old acumen on the part of information highway businesses) consumers will be able to determine how far their personal information is allowed to propagate. Many marketeers already operate under the voluntary code of fair information practices, which states that personal information collected for one purpose should not be sold or used for another without the individual's consent.

Harris Gordon, a partner at the Boston office of Deloitte & Touche sums up the middle ground when he says, "In many cases people say, 'If you can use technology to focus what you send me, I'm happy to exchange some information about myself.'"

Moreover, Gordon says, the millions of us who shop via phone and catalogs often crave the kind of personal recognition our grandparents enjoyed at the corner store. "If I'm a good client, I want to be treated well," he says.

Put another way, getting on a list is fine with me, so long as I get what I want.

Booker is *Computerworld*'s Chicago bureau chief

Closing the gap to save your business

Patricia B. Seybold

There's a huge gap between business re-engineering and information technology. Yet for most companies to survive, that gap must be closed.

One of the most often cited failures of business re-engineering is AT&T's first attempt to re-engineer its 800-number service. The re-engineering team proposed a solution to radically reduce the time required to activate a new 800 account: Equipping customer service personnel with systems that let them access the interlinked applications needed to process service orders, get installation crews on-site and set up maintenance and billing procedures.

Business process modeling has to be at the core of all application development efforts.

The gotcha was the daunting task of linking geographically dispersed legacy systems to deliver streamlined, integrated applications to the desktops of customer service personnel. All of us suffer from the same difficulties with large entrenched systems that were purpose-designed, have served that purpose and now need major revamping.

The problem isn't our legacy systems. It's the fact that our business logic is locked up in those applications and systems.

How should you design applications to support re-engineered business processes? First, you need to capture your business logic and the definition of your business information objects in a high-level, easily understood, dynamic form — an electronic model of your business from which you can generate applications.

Object-oriented modeling techniques lend themselves well to this task. General Motors' ambitious Die Manufacturing Re-engineering project uses Smalltalk to capture these models and generate iterative prototype-to-production code. Workflow modeling tools are also an excellent way to create a high-level description of your business.

Once you've unlocked the business logic from your applications, you need to create a model of the business as the businesspeople think of it. This is where your business information objects come in. This domain model of your business changes dynamically as your executives, customers and employees create meaningful new distinctions about what kinds of information are relevant for optimal performance. This model is owned by the businesspeople, not the programmers. And you may discover that much of that information can remain encapsulated in its legacy stronghold.

The next step is to link these business process and business objects design and modeling tools to your rapid application development activities. This is where the big gap still exists. We can do rapid application prototyping and development using client/server tools or we can use integrated CASE technologies to do a more thorough, top-down job of designing and developing processes and applications.

Take the new business objects and rules you create with rapid application development of client/server applications and feed them back into your dynamic business model. The top-down approach is more rigorous but too slow for a rapidly changing business climate. Bottom-up applications are often too sloppy and not optimized for performance and integrity.

Business process and business object modeling should be at the core of all our application development efforts, top-down and bottom-up. That's how to close the gap between re-engineering your business and application development, and it's the only way you'll be able to continually re-engineer your business.

Seybold is president of Patricia Seybold Group in Boston. Her Notes address is Patricia Seybold@PSEOG. Her Internet address is PSeybold@MCImail.com.

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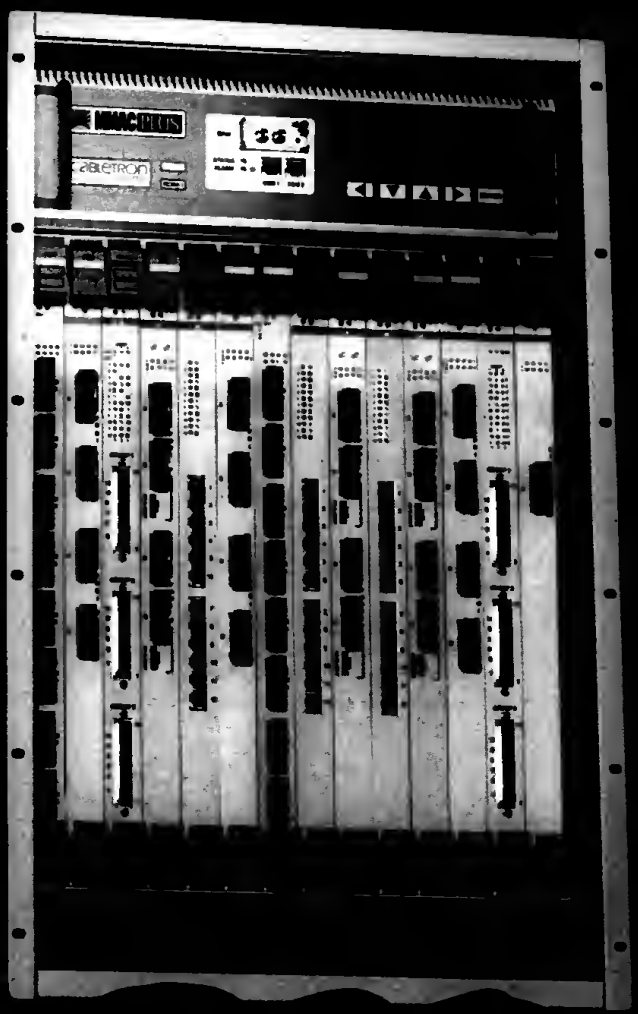

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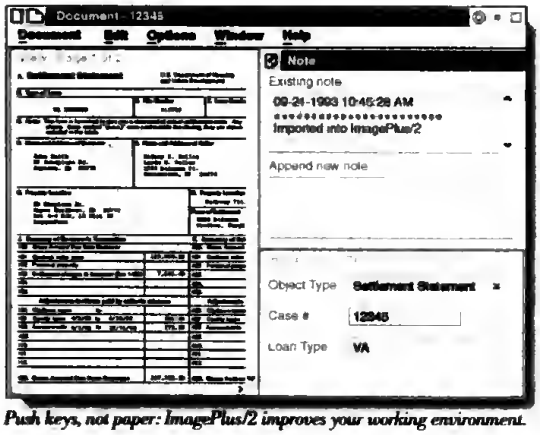

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PCs key to growth of imaging

By Michael Vizard

For most information systems organizations, imaging has been one of those tantalizing technologies that has promised much but never quite lived up to its potential. Instead, the adoption of imaging has been happening incrementally as companies try to eliminate as much paper as possible.

"It used to be you'd see companies buying imaging systems for a department with 30 to 40 people in it," said Scott McCready, an industry analyst at International Data Corp. in Framingham, Mass. "Now we're seeing sales involving 4,000 to 5,000, even 9,000 units at a time."

The primary reason imaging has been slow to deliver is that most of the imaging systems in wide-scale use today are expensive systems that use proprietary back-end servers accessed by Windows or OS/2 clients.

But as imaging technology becomes better integrated within existing desktop applications, users can expect to see it finally come of age in a variety of mainstream applications during the next two years. In fact, the capabilities of stand-alone desktop imaging packages for Windows and OS/2 from companies such as Caere Corp., Watermark Software, Inc. and Xerox Corp. have improved dramatically during the past year.

closer Imaging OK

Challenge of integration

But the challenge facing IS will be integrating these packages with the mainstream applications running on Windows and OS/2.

"It's inevitable that vendors, whether it's part of their operating systems or applications, will include support for imaging as a data type. Application providers will then provide value on top of those basic imaging functions," McCready said.

"There is this animal called the electronic document, but all the pieces aren't in place yet," said Carl Frappaolo, executive vice president of the Delphi Consulting Group in Boston. "Because of this, imaging as a stand-alone market is dying. Imaging is really just another data type, not a separate application."

Already all the major PC applications vendors, including Microsoft Corp., Novell, Inc., WordPerfect Corp. and Lotus Development Corp., are working on integrating imaging as a core component of their future compound-document architectures.

"People don't want to have to treat imaging files as a separate thing apart from their other files," noted Mary Bamford, an industry analyst at BIS Strategic Decisions in Norwell, Mass.

Once the major vendors deliver imaging as a standard part of their document management wares over the next two years, Bamford noted that imaging will have crossed over from being a function to a specific feature of most applications.

But before imaging on the desktop graduates from being a convenience to a ubiquity, a number of enabling technologies have to fall into place. Two of those technologies, compression and optical character recognition (OCR), already have. However, technologies such as workflow, compound documents, text retrieval and robust client/server architectures are still in the early stages of development.

"One of the impediments for imaging is that the technology infrastructure is unsuitable. And it's unrealistic to think that one application is going to justify the necessary upgrades," McCready said.

Nevertheless, technology advances are making imaging more attractive to the average end user. For example, compression technology has become more widely accepted following Microsoft's move to include a disk compression utility in DOS. This means that users will not have to dedicate gigabytes of disk space to support imaging applications.

OCR gets better

Meanwhile, the capability of scanners using OCR has improved dramatically over the past 18 months thanks to the incorporation of neural network algorithms. These algorithms enhance OCR offerings because they can also be used to enhance images, format scanned documents and provide the underlying structure for editing documents once they are scanned.

Angel Padilla, a member of the research and development team at Allergen, Inc., a pharmaceutical firm based in Irvine, Calif., is using PageKeeper from Caere to attach articles taken from medical journals to memos and other documents. "PageKeeper lets me call up articles from journals stored on a database fairly fast without the pain of having to look them up in a file cabinet," Padilla said. "I can then cut pieces of those images and attach them to memos and reports."

These compound documents typically consist of imaging files attached to simple word processing files. But as object technologies become more prevalent, users can expect to see more compound documents as object-oriented infrastructures, such as Microsoft's Object Linking and Embedding (OLE) 2.0 interfaces or the OpenDoc specification created by IBM and Apple Computer, Inc.

In fact, the advent of low-cost OLE 2.0 imaging products from vendors such as Caere and Watermark Software, combined with distributed services such as Lotus' Notes, will make imaging a mainstream application in the very near term.

"With OLE 2.0, I think you'll see imaging's widespread use in office automation, and it'll happen pretty quickly," said Frank Gilbane, president of Publishing Technology Management, Inc. in Arlington, Mass.

Imaging, *page 44*

Imaging by the numbers

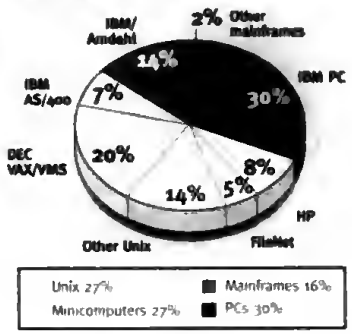
Typical cost by category of an imaging system

The complexity of imaging systems results in large services costs related to implementation and customization

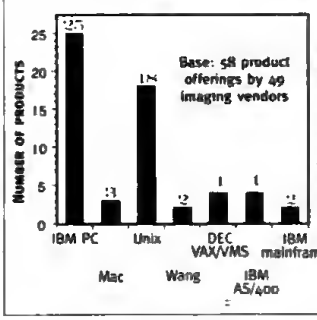
Imaging platforms (actual or planned)

(Respondent base: 370 IS managers)

As the move toward PC-based groupware applications evolves, the share of the imaging market held by PCs should increase



Products by platform



IBM PCs and Unix systems have become the dominant platforms for hosting imaging applications, according to an analysis of vendor product offerings.

Source: Delphi Consulting Group, Boston

Different approaches

For many IS professionals, the concepts being applied to client/server computing are essentially attempts to reinvent the functions provided by a mainframe across a distributed PC environment.

"The big difference is that when many PC people approach client/server, they don't realize all the things they don't know," said Jonathan Handler, senior consultant for operational technology assessment at Blue Cross and Blue Shield Association in Chicago. For example, PC enthusiasts are beginning to understand the value of preemptive, multithreaded, multitasking operating systems running on the client. These operating systems, such as OS/2, Unix and Microsoft's Windows NT, let applications perform multiple tasks while handling memory contention issues, frequently the bane of client/server computing.

And since OS/2 provides these capabilities with less system resources than either Windows NT or Unix, many organizations rely on OS/2 as their client system. This is not to say that Windows 3.1 is not widely used in these applications. However, OS/2 typically provides higher levels of performance on the same hardware platform running single-threaded Windows 3.1 applications because OS/2 is a multithreaded operating system.

For example, Handler noted that Filenet recommends that the minimum Windows client be a 486DX33-based system configured with 8M bytes of memory. The minimum OS/2 client is a 386SX20 with 8M bytes of memory.

Microsoft, however, should effectively address these issues with Windows 4.0, a 32-bit preemptive multitasking environment due out by year's end.

—Michael Vizard

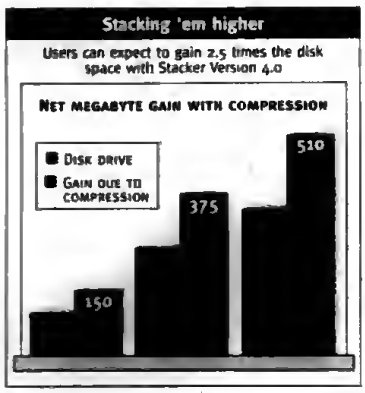
Stac gains space with compression tool

By Ed Scannell

Stac Electronics last week delivered a new version of its data compression product that company officials said they believe is the first to break the 2-to-1 compression ratio barrier.

On average, Version 4.0 of Stacker for Windows & DOS gives users a 2½-to-1 compression ratio through a new technology called SmartPack that more "intelligently" packs data on a hard disk.

"SmartPack was designed to eliminate wasted space in and around files in that it does both sector and cluster packing," said Anne Galdos, product manager at Stac Electronics. "Users with a 100M-byte drive will get at least 150 additional megabytes of disk storage."



Company officials said they believe growth prospects for data compression remain solid, but the bigger opportunity is shifting toward portables as desktop systems ship with much higher disk drive capacities.

"We have seen a definite trend among corporate accounts toward [data compression] on laptops, especially those not directly tied in to a network," Galdos said.

Microsoft Corp.'s bundling of DoubleSpace with its DOS 6.0 has also further encouraged the use of compression technology. As of last August, 62% of the 11 million DOS 6.0 users had used the product, according to company figures.

But although DoubleSpace has certainly raised the visibility of compression technology, some observers stop short of saying it has legitimized it, which some last year predicted might be the case.

"Microsoft has shipped a lot of [DOS] 6.0, but I don't think that many people are using it. That [62% of DOS users using DoubleSpace] figure sounds high," said Walter Miao, vice president of technology research at Link Resources, Inc. in New York.

While the prospects for market growth look good for some vendors this year, such as Microsoft and Stac Electronics, the data compression market may turn out to be a two-horse race.

AdStor, Inc., which had been providing IBM's Personal Software Products group with its SuperStor compression utility for PC DOS 6.1, closed its doors last month. Personal Software Products officials said they will continue providing users with the AdStor product.

Stac Electronics has also changed the look of the product by adding the Stacker Windows Toolbox. Commands in the new tool box include alarms for changing disk conditions, ways to more easily manage, diagnose or repair drives and ways to get more detailed reports on which data files and applications are taking up the most space.

Stacker 4.0 can be installed on systems using Microsoft's DoubleSpace. The Stac Electronics product automatically converts compressed data at setup time.

Making room

With an increasing number of desktop systems shipping with high-capacity hard drives, many users do not see a need for data compression products. But that belief may not last. With the expected onslaught of true multimedia applications with voice, video and imaging capabilities, even users with 300M-byte hard drives will be looking for more disk space. "When we get to real multimedia, it will eat up disk space like it is going out of style," said Walter Miao, vice president of technology research at Link Resources.

The changes

Despite the added compression capabilities, the usual associated performance degradation is "negligible" in the new version, Galdos said. The company has also reduced the amount of memory the product requires from 47K to 17K bytes, she added.

Stacker 4.0 is compatible with MS-DOS Versions 3.2 through 7.0. Stacker drivers can be preloaded with MS-DOS 6.0 and 6.2, as well as with PC DOS 6.1 and Novell, Inc.'s DOS 7.0.

Corporate accounts buying a site license for 100 or more copies will receive network and monitoring capabilities. These allow information systems professionals to more easily transfer Stacker from the network server to individual workstations.

The suggested retail price for Version 4.0 is $149. Users with previous versions of Stacker can upgrade for $49.95.

Stacker for Windows & DOS Version 4.0 was scheduled to be available through retail outlets last week, company officials said.

Carole Patton

Gong for the gang show

Software is so bloated that its developers are being forced to adopt some radical architectural changes. WordPerfect is one of the first vendors to scrap traditional architecture and replace it with something completely new: Binary Initialization Files (BIF). And you can soon expect similar moves from Microsoft. The reason? Today's complex programs have become so feature-inflated that access times are unacceptable.

BIFs get rid of those ever-present initialization files that Windows programs have always used to handle program settings. Called "INI" (rhymes with Minnie) files, initialization files are a simple way of listing — and changing — a program's features because the setting information can be read and understood by humans (INIs are really just text files).

This approach has always offered a lot of flexibility. New sections can be created, deleted and customized by users.

But while most INI files happily reside in growing disorder (for some reason they are never indexed), all of them have to be read through before the program can answer a request. The results are longer access times and lots of waiting around.

Modular programs could solve part of this because even competing programs can share an INI file, as long as the developers agree on simple naming conventions. But only feeble attempts have surfaced thus far.

WordPerfect might just as well have a "Keep Out" sign posted on its BIFs. Power users take note: No more tinkering. Swapping INIs for BIFs is like trading up from a Volkswagen Beetle to a Beamer with fuel injection and electronic ignition. And WordPerfect is not having a smooth transition.

The new WordPerfect for Windows Version 6.0 crashes whenever I try to access any of those special bells and whistles, such as Chart Editor. The program also crashes whenever I try to print a letter. Perhaps WordPerfect 6.0 is not able to read the fonts and graphics codes in files created with the earlier version.

What's more, after the system has crashed a few times, the file that contains all those WordPerfect user settings (wpcset.hif) becomes so corrupted that it must be reinstalled.

WordPerfect has promised to post a fix by the end of next month on CompuServe. But only a small percentage of users go on-line regularly, so most won't know about it. If this were a General Motors product, it would be recalled. Instead of a radical shift to BIFs, vendors such as WordPerfect should put their software on a diet.

No more Easter eggs

There's another, more subtle change taking place, also inspired by the sheer size of today's programs. Gone are the "gang screens," those hidden animated tributes to the development team that once were in almost every Windows package. Software vendors call gang screens "Easter eggs" because finding them is like a treasure hunt. You need a special combination of keystrokes and mouse clicks to locate the eggs.

Software Publishing dropped its screen after updating Superbase. And Symantec's Norton Desktop for Windows 3.0 had its screen yanked at the last minute to save disk space. You'll find the names of the Norton Desktop team listed in the front pages of the User Guide.

But sadly, the fun is gone.

If you haven't already found the secret screen in Norton Desktop for Windows 2.2, you may want to take a nostalgic peek before you upgrade. Here's how to bring it up:

With the Norton Desktop in the background, go to the help menu and click on "About." Hold down the N, D and W keys, and then double-click on the Symantec icon. The screen pictures team members who reveal favorite quotes, including tidbits such as, "I want you all to stonewall it." (Richard Nixon)

Microsoft's Access 1.1 still has a great gang screen. To bring it up, open any Access database (the sample NWIND database will do) and create a new table named "cirrus." Be sure you type "cirrus" in lowercase letters. Give this new table one field of any type, with no primary key, and save it.

Next, highlight "cirrus" in the table container, go to the help menu, and select "About Microsoft Access." Access will open a dialog box that displays the Access logo at the top left corner. (The logo icon is a key and a table.) Position your mouse on the Access logo, hold down the Ctrl and Shift keys, and double-click the right mouse button.

You'll see an animated cartoon in which a pair of ducks ("Paradox") are zapped by lightning bolts, followed by the names of the entire Access development team. Look very closely at the last name in the list of people being thanked.

Patton is president of the Mendham Technology Group in Mendham, N.J., which produces client/server summits for corporate strategists. Her MCI Mail address is 401-4869.

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Multimedia is growing by leaps and bounds

By Michael Fitzgerald

A raft of multimedia announcements indicates that this loose collection of technologies is beginning to gather steam in the marketplace.

But in the corporate marketplace, analysts say multimedia continues to lag.

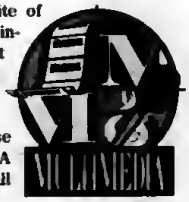
"It's still much bigger in the consumer world than the corporate world," said Jeffrey Henning, an analyst at BIS Strategic Decisions in Norwell, Mass. BIS projects that 14% of all PCs in 1994 will ship with a CD-ROM drive.

Still, among the announcements are some actual applications:

•The Texas Employment Commission last week unveiled Info/Texas, which will comprise 50 multimedia kiosks spread across the state in malls and other public sites. Info/Texas was designed to let both Spanish and English speakers access job match information on-line, with full-motion video and sound. Other state services will eventually be added. Texas is the fourth state to install such multimedia kiosks.

•Cable News Network began using The Network Connection's NewsView, a system designed to let television news editors call up images and edit video clips while preparing news packages. The technology runs at 30 frame/sec. — the same as standard television images — and uses Motion Picture Experts Group compression technology.

•Acer America Corp. announced five new multimedia machines in both desktop and tower configurations. A low-level 486 system with a double-speed CD-ROM drive, a 210M-byte hard drive, a sound card and a suite of software that includes Microsoft Corp.'s Works 3.0 Multimedia Edition will retail for a base price of $1,999. A tower system will start at $1,999.



•Advanced Logic Research, Inc. began shipping its Multimedia Express, a desktop PC based on the 25/50-MHz Intel Corp. 80486DX2 processor. A PC with a dual-speed CD-ROM drive, a 16-bit stereo sound card and a monitor has a base price of $1,995.

•Advanced Micro Devices, Inc. (AMD) said it would license Ultrasound, an audio technology by Advanced Gravis Computer Technology Ltd. in Vancouver, British Columbia. AMD will integrate sound into some of its integrated circuits.

•Motorola, Inc.'s Microcontroller Technologies Group will release today an updated version of its DSP56000 family of digital signal processors. The new PC Media strategy is a combination hardware/software offering that will run under Windows and will eventually run full-motion video.

In a related development, Rob Lippincott, executive vice president of the Interactive Multimedia Association, said in a round of recent hearings at the U.S. Patent and Trademark Office that it should reconsider the way it grants patents on technologies such as multimedia. The hearings were sparked by an industry outcry over the granting of a broad multimedia patent to Comptoo's NewMedia in Carlsbad, Calif. That patent is under review [CW, Nov. 22, 1993].

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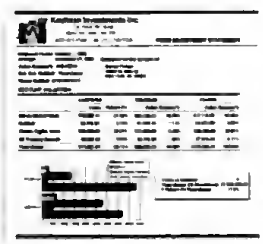

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Imaging

CONTINUED FROM PAGE 39

"What you're seeing is the bringing of imaging down from the back room to the desktop," said John Migliore, executive vice president and chief operating officer at Caere. "Previously, imaging required a decision by a corporation or an MIS group in that corporation. Now it will be just part of people's desktop."

However, McCready ooted that while some $99 imaging packages are available, these offerings may oot be robust enough to run enterprisewide applications.

Once imaging becomes an integral element of compound documents, users will need easier ways to find documents on the server. This part of the puzzle is being addressed by indexing and text retrieval technologies bundled into imaging products or purchased separately from vendors such as Verity, Inc. or Fulcrum Technologies, Inc.

Ultimately, text retrieval technology will incorporate agents that allow these tools to make more intelligeot searches of documeot databases. "We're already beginning to see the idea of people creating custom newspapers from on-line oews services," McCready noted.

Meanwhile, workflow technologies are becoming ooe of the most important elements of documeot manageoeot architectures. Many imaging providers have already developed their own workflow engines or opted to bundle in technology from companies such as Action Technologies, Inc. or Reach Software Corp.

Learning by doing

But the full potential of workflow technoologies will not be realized until people actually re-engineer their work processes. "Paper is a sequeotial process. Electronic workflow allows you to introduce parallelism into the process so people can work on differeot parts of the process at the same time," said Jonathan Handler, senior consultant for operational technology assessment at Blue Cross and Blue Shield Association in Chicago.

Scanner sales

BIS Strategic Decisions predicts that 4.5 million scanners will be sold in the year 2000, compared with an estimated 1.3 million units for 1994.

Once this re-engineering takes place, alongside the adoptioo of more robust eli-eot/server architectures, the use of LAN-based imaging products such as offerings from ViewStar Corp. and Key-file Corp. will increase. And as imaging proliferates, it will likely stratify into three distinct markets: a low-end desktop market, LAN-based offerings and the high-end enterprisewide solutions offered by companies like IBM and Wang Laboratories, Inc.

The customer

"Everything is about serving the customer better. If it's not on an imaging system, you're talking about looking it up on microfilm, which could take a day or more," said Jonathan Handler at Blue Cross and Blue Shield Association in Chicago. "But it's impossible to do imaging without incurring a lot of costs. What you have to find is the applications where the benefits outweigh the costs."

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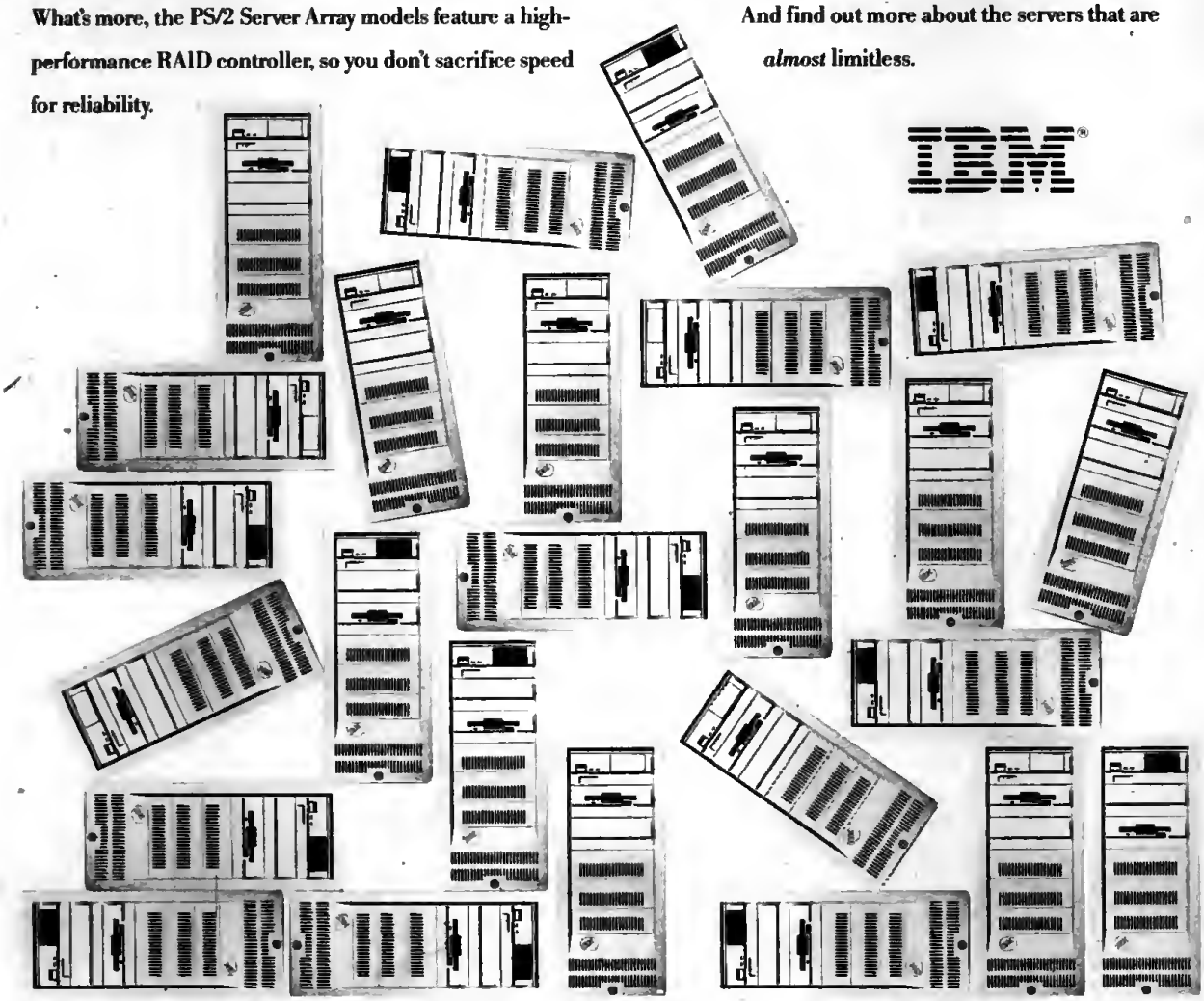

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Mac to get fuller NetWare

By Elisabeth Horwitt

■ Users frustrated with Novell, Inc.'s limited support of Macintosh clients on NetWare can take heart: Novell is preparing to provide the Macintosh with a much fuller range of NetWare-based services.

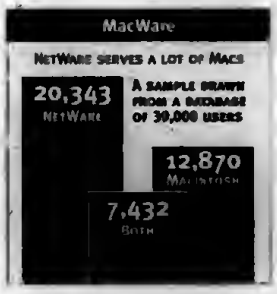
The rollout of improved NetWare services for the Apple Computer, Inc. desktop will begin later this year and continue through 1995, according to Susan Hanson, director of the Provo, Utah, company's Macintosh services group.

Such a move would serve a significant number of companies that have hooked Macintoshes to NetWare. And LAN administrators who have their Macintosh and Windows machines on NetWare said they would like to see more commonality of services and administration across the two types of clients.

Stryker, Tams & Dill, for example, has 80% Macintoshes and 20% PCs; the Newark, N.J., law firm switched over to NetWare from AppleShare because it needed a network operating system that would support both types of systems equally, said Michael Banker, systems administrator.

Macintoshes and PCs can share files and printers on NetWare 3.12 quite well, but "in a NetWare 4.01 environment, NetWare for Macintosh does not provide direct access to NetWare Directory Service [NDS]," he said.

Novell's current NetWare client software for the Macintosh consists of a NetWare Loadable Module that implements AppleTalk, Apple's native communications protocol for the Macintosh, on Novell's network operating system platform. This enables Macintoshes to access files and printers in the NetWare environment using their native communications protocol, Hanson said.



Furthermore, a gateway translates between the Apple and NetWare file and print share environments. This allows Macintoshes to access the NetWare file and printing resources and, conversely, allows a Windows NetWare client to access an AppleTalk printer.

However, Macintoshes do not run Novell IPX and NetWare Core Protocols (NCP) at this time, Hanson said. This makes the gateway necessary and precludes Macintosh access to NDS. Right now, Macintoshes can only access the bindery-based NetWare 3.11 directory.

"Mac users cannot even see NDS," to browse files or administer the piece of Novell's global directory that pertains to their workgroup, said Rheid Schloss, Novell specialist at Brigham Young University. Many LAN administrators in various university workgroups are Macintosh users, he added.

In general, the need to administer two separate environments — NetWare and AppleTalk — with a gateway in between, raises the hassle factor for LAN administrators, Schloss indicated.

In addition, providing services to Macintosh desktops takes up a lot of CPU power on NetWare 4.01, Schloss said, at least partly because of the overhead generated by the gateway.

Novell will address the majority of the problems described above with the following four-phase rollout:

•**Phase 1:** IPX protocol stack on the Macintosh, later this year. Third-party products such as Claris Corp.'s FileMaker will support the IPX implementation on the Macintosh, as well as a Windows implementation. This will enable the two client systems to share files over IPX without going through NetWare, Hanson said. Roughly 20 developers, including On Technology, Inc., have announced ports of the software to IPX on the Macintosh.

•**Phase 2:** Macintosh access to the NDS global directory, later this year. Novell will provide utilities that enable a LAN administrator to use NDS to configure printers on the Macintosh, Hanson said. Novell will also provide support for Apple's Open Collaborative Environment workgroup solution.

•**Phase 3:** NCP on the Macintosh, sometime in 1995. This will finally enable Macintoshes to access NetWare file and print services directly and be managed by NetWare Management Services, including security and authentication services.

"Users are telling us that they want Macs to be more manageable, [the Mac's file system] AppleShare isn't very secure," Hanson said. Also, major database vendors such as Oracle Corp. will port their client software to NCP on the Macintosh, enabling Macintoshes to access SQL database services on NetWare.

Full NCP support will also allow Macintoshes to access the Global Message Handling System without going through an AppleTalk-to-NetWare gateway, as they must now, Hanson said.

•**Phase 4:** Extension of Personal NetWare peer-to-peer communications and resource sharing beyond its current DOS and Windows clients to the Macintosh in a 1995 time frame.

MAPI support anchors SQL Server

By Stuart J. Johnston

Microsoft Corp.'s latest revision of its server database adds support for some features that developers have been waiting for.

Microsoft SQL Server Version 4.21, which runs under Windows NT, broadens support for Banyan Systems, Inc. and TCP/IP networks, adds a push-button facility for porting OS/2 SQL Server databases and provides support for Windows' Messaging Application Programming Interface (MAPI) 1.0.

The release also makes simultaneously available editions for Intel Corp. processors, Digital Equipment Corp.'s Alpha AXP and MIPS Computer Systems, Inc.'s R4x00 processors.

While the push-button conversion facility gained some praise, one major developer tossed his vote behind SQL Server 4.21's MAPI 1.0 support.

"MAPI is very important to us [because] it means we can do some things within transaction blocks that we couldn't do before," said Bill Cornfield, president of The Windows Support Group, a New York-based consultancy. The company's clients include the National Football League, Anheuser Busch, Inc. and American Express Co.'s Gold Card division.

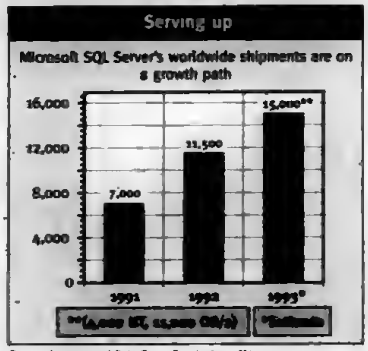
Support for MAPI technology will replace "some 'roll-your-own'" code, Cornfield said.

MAPI was developed as a high-level protocol to standardize messaging between front-end client applications and back-end messaging servers, allowing customers to mix and match front and back ends.

SQL Server 4.21 can use MAPI to use triggers and stored procedures and automatically send the results of database queries as electronic mail to other applications. The functions can be used, for example, to send E-mail to users or database administrators when a specified event occurs.

However, the only version of MAPI supported under Windows is the so-called "Simple" MAPI, which requires users to communicate through Microsoft Mail.

Windows 4.0, due to ship by year's end, will add MAPI 1.0's generic messaging support, according to Microsoft officials.



Source: International Data Corp., Framingham, Mass.

Socket support

Broadened support for Banyan's Vines lets SQL Server automatically register with the system as a StreetTalk-addressable network service, enabling users to access the database management system as they would any other service.

Increased TCP/IP support now includes client connections using the Windows Sockets interface.

"We've always supported PC desktops using the native LAN's mechanisms such as named pipes," said Gary Voth, SQL Server group product manager. "What's new is that in addition to Microsoft's TCP/IP stacks, we now support any vendor's stack that supports Windows Sockets."

The push-button SQL Transfer Manager copy management tool provides automated transfer of databases between SQL Servers.

"We anticipate a lot of environments where people have both RISC and Intel database servers and can't just exchange binary files," Voth said. "There [are also] a lot of customers bringing NT into environments where there are existing Sybase or OS/2 SQL Servers so they can move the databases into NT rapidly."

Purchasers of Microsoft SQL Server 4.2 can upgrade for $29.95 for the Intel version. The desktop edition of SQL Server for stand-alone use costs $995, and the workgroup edition, which supports 10 users with 25 connections, costs $1,995. A departmental edition for 64 users and 128 connections costs $7,995.

Microsoft offers two editions of its Enterprise System, both supporting unlimited numbers of users. The Intel edition costs $14,995, and the RISC edition costs $19,995.

Management software

Doctors prescribe software for patient record woes

By Mitch Betts
WASHINGTON

Calling it the best software available for the practicing internist, the American Society of Internal Medicine (ASIM) recently gave its official endorsement to a patient records and office management software package developed by MedicaLogic, Inc. in Beaverton, Ore.

The Washington-based association's endorsement of ClinicaLogic marks the culmination of a two-year process in which offerings from more than 300 vendors were reviewed. The action also marks the first time a major medical association has endorsed a software package for electronic patient records.

ASIM said it hopes the bold move will encourage the nation's 140,000 internists to overcome their reluctance to move away from paper clinical records.

Time to move

Electronic retrieval of patient information is a central element of health care reform legislation and many re-engineering efforts in the private sector. However, less than 5% of physicians have taken the electronic plunge.

"The demand for electronic data by insurers, hospitals and others . . . will continue to grow with or without prodding from lawmakers," said Alan R. Nelson, ASIM's executive vice president. "Physicians who make the changeover now to electronic records will be ahead of the game," he said, "because they'll be better able to measure things like outcomes, quality and cost-effectiveness."

The MedicaLogic software — developed by Dr. Mark Leavitt, a board-certified and practicing internist — stood out because it is tailored to the actual work habits and requirements of internists, ASIM officials explained.

"Our patients often have complex, multiple illnesses requiring comprehensive treatment and documentation. As a result, internists' offices often turn into paperwork jungles," Nelson said. The software is meant to streamline office processes, reduce paperwork and, ultimately, improve patient care.

ClinicaLogic

Recommended computer configuration

NETWORK SOFTWARE	Artisoft, Inc. LANtastic Version 5.0 or later	Novell NetWare 3.11 or later (2-50 users) or LANtastic Version 5.0 or later	NetWare 386 Version 3.11 or later (20, 50 or 100 users)
NETWORK	Ethernet twisted-pair wiring and hub	Ethernet twisted-pair wiring and hub	Ethernet twisted-pair wiring and hub
FILE SERVER	Master workstation is nondedicated server	486DX, 33 MHz or faster; 8 Mbytes of RAM or more; 16-bit network interface	486DX, EISA bus, 33 MHz or faster; 16M bytes of RAM or more; 32-bit network interface
MASTER WORKSTATION	486, 33 MHz or faster; 8M bytes of RAM or more; 14,400 bit/sec. modem; 16-bit network interface; DOS 6.0	486, 25 MHz or faster; 8 Mbytes of RAM or more; 14,400 bit/sec. modem; 16-bit network interface; DOS 6.0	486, 25 MHz or faster; 4M bytes of RAM or more; 14,400 bit/sec. modem; 16-bit network interface; DOS 6.0

Source: MedicaLogic, Inc., Beaverton, Ore.

24-hour service

The core of the software is ClinicaLogic, a system for electronic patient records that allows physicians to access patient data even when they are away from the office, thus improving after-hours care.

The software also has modules called PharmacoLogic for selecting the most cost-effective drugs and avoiding drug reactions; ScheduLogic for appointment scheduling; and LinkLogic for integration with compatible software products.

The software runs on stand-alone Intel Corp. 1486-based PCs and Ethernet networks using Artisoft, Inc.'s LANtastic 5.0 or Novell, Inc.'s NetWare 386 operating systems. The cost of ClinicaLogic is roughly $1,000 per user, depending on options and configuration, a spokeswoman said.

ASIM signed an agreement with MedicaLogic that allows the vendor to use the endorsement in its marketing campaign; ASIM members will get a 10% discount on purchases of the software.

Scanner turns paper into E-mail

By Lynda Radosevich

■ In the latest step toward helping users reduce paper on their desktops, Visioneer, a Palo Alto, Calif., start-up, has begun shipping a desktop scanner and related software that works with leading electronic-mail systems.

The scanner, called PaperMax, is about the size of a tall roll of aluminum foil. It is smaller and, at $499 for hardware and software, cheaper than "even crummy" scanners available today, according to beta tester Dave Dahlberg, a partner at design firm Charlotte Anderson Design in Bountiful, Utah. It is also more robust than handheld scanners, he said.

PaperMax plugs into a computer's serial port and can scan one sheet in roughly six seconds, according to users who have tried it. The scanned image then appears on the Windows desktop. Related MaxMate software lets users manipulate the images and link them to E-mail, fax and optical character recognition applications. A separate viewer utility lets users without the Visioneer system view, print and save the images.

MaxMate software *allows manipulation of images input using the PaperMax scanner*

Get in line

Marc Kuffler, a senior analyst at a major food manufacturer in Richmond, Va., said he envisions equipping remote personnel with the scanners so they can scan in expense reports and receipts from the field.

"It's another driving force behind our move to a paperless office," he said.

However, Kuffler said the product works only on Windows machines and that users can scan only one sheet of paper at a time.

Several E-mail vendors rallied behind the Visioneer scanner. Lotus Development Corp., Da Vinci Systems Corp. and Delrina Corp. said that they are bundling the MaxMate viewing software with all forthcoming releases of their messaging products.

However, MaxMate is not shipping with Microsoft Corp.'s Mail because that product does not include utilities that allow users to view other document formats, according to Shelly Harrison, a vice president of marketing at Visioneer.

Servers target users who 'outgrow' PCs

By Jean S. Bozman

Netpower, Inc., a Silicon Graphics, Inc. spin-off, recently announced RISC servers for Windows NT aimed at the "upsizing" market of Windows users whose applications are outgrowing Intel Corp. PC-based hardware.

The Sunnyvale, Calif., firm is shipping two high-end Microsoft Corp. Windows NT servers priced from $5,285 to $28,160. Netpower announced its first products, a series of NT-based workstations built on MIPS RISC chips, in September (CW, Sept. 27, 1993). The servers will be marketed to users who need more power to run their Microsoft SQL Server for OS/2 databases, industry analysts said.

More to come

Industry analysts said Netpower has an early lead in the NT server market but will soon be competing with servers from Digital Equipment Corp. and AT&T Global Solutions, formerly NCR Corp.

"This [server] will play extremely well in companies that are trying to consolidate their [IBM] OS/2 servers without going to Unix," said John Logan, executive vice president at Aberdeen Group in Boston. "Those people are under intense pressure to upgrade to Unix and are finding only incremental improvements from powerful PC servers."

Tightening up

One such site, Chemical Banking Corp.'s Risk-Management Division, is evaluating the Netpower servers with the aim of consolidating several Microsoft SQL Server for OS/2 databases on a single 200-byte database server.

"We are duplicating a production SQL Server database," said Paul Seides, technology manager at the 400-person Chemical Bank unit. "We are kicking the wheels to see how it comes out."

Seides said that the New York site, which has Novell, Inc. file servers, would like to stay in the Windows operating environment.

Stan Schatt

Mobile workers get no respect

Pity the poor mobile worker. Vendors promise the perfect portable office in a briefcase for only the price of their particular cellular modem, nonstandard PCMCIA card or remote network communications software. Now comes the latest not-quite-ready-for-primetime mobile product: Intel's ProShare Personal Conferencing Video System.

Think of it. Imagine yourself in your hotel room, anxious about explaining some bad news to your boss. If only you could call her and see her face while you explain why the Flipjet Widget 1000 is going to come in over budget. At least you can switch conversational tactics if you see her beginning to frown. Long pauses in the conversation are less frightening if you see she is not reaching for your personnel file.

But Intel's personal videoconferencing suffers from the same weakness as many other products developed by the computer industry. It was designed by people who love technology for people who would just as soon have the technology transparent. When you pick up a telephone or dial a phone number, you don't care how these devices work, and you don't want to be forced to make technology decisions based on these products. (Will this phone work with my particular phone line?)

What you want is not what they've got

You would like to believe that if it is sold, the product will work with whatever equipment the average person has. But that's not the case with Intel's product, even though it was the hit of the ComNet show and attracted huge crowds. I watched the 15 frame-per-second video on a PC screen and realized that pictures from the moon actually seemed more lifelike. But hey, it was someone's face right smack on my PC screen, and that's an exciting idea.

OK, sign me up, you might be saying. Not so fast. To see video from a remote user, there has to be an ISDN line. At the end of Intel's ComNet presentation, an actor says with deadly earnestness that Intel is working with the telephone companies to ensure that ISDN will be installed in your area as soon as possible. Perhaps Intel will have better luck than the major computer manufacturers and millions of customers who have found the telephone companies quite a bit less friendly than their emotional television commercials might suggest.

Out of curiosity, I called Pacific Bell and discovered that in San Diego there are only two small pockets of ISDN. My company is the single largest telephone customer in San Diego county and is not able to access ISDN. I guess this makes lots of sense if you are a monopoly and prefer to keep all your customers equally discontent rather than give certain customers preferential treatment.

Let's assume that somehow Pacific Bell came to my door tomorrow and told me I had an ISDN line directly to my office. Could I call the office while working at home and see my boss if we both have the appropriate Intel equipment?

The answer is no. It seems that there are no adapters yet for notebook computers. Mobile computer users simply get no respect.

Schatt is LAN service director at Computer Intelligence/InfoCorp in La Jolla, Calif.

Fiber may make more cents

Lower prices could make fiber an economical option for all

By Stephen P. Klett Jr.

■ Laying fiber to the desktop may have many benefits, but it is so expensive that only the most bleeding-edge users have embraced it. That, however, will likely change within a year.

Analysts say the price gap between Category 5 unshielded twisted-pair cable and fiber has narrowed to the point that fiber may become a viable option for everyone. Observers estimate that installing fiber to the desktop costs from $1,500 to $2,500 per network node — about 25% higher than comparable costs for unshielded twisted pair.

Now cabling on the way

According to Gartner Group, Inc., 47% of 200 large firms surveyed plan to install new cabling within three years and 17% plan to allocate funding for 100M bit/sec. speeds to the desktop within 12 to 18 months.

Economic sense

"Technological superiority and declining fiber-optic system costs are making fiber an economically viable alternative to unshielded twisted-pair cable," said Fred McClimans, an independent networking consultant in Ashburn, Va. McClimans added that this is especially true given the fact that the labor costs and skills required to install and maintain copper cable have increased (see box page 54).

Nevertheless, the premium for fiber is one that some users are willing to take in the short term, with expectations for payback over the long haul.

Worth the price?

The Richardson Independent School District put out bids to equip a test building with Category 5 twisted-pair cable and fiber-optic cable.

This is how the costs broke down:

	CATEGORY 5	FIBER-OPTIC
CABLE	36,600 FEET $4,026	18,300 FEET $8,418
LABOR	480 HOURS $10,800	528 HOURS $11,880
SUPPLIES	$2,700	$3,600
TOTAL COST	$17,526	$23,898

For example, the Richardson Independent School District in Richardson, Texas, is installing fiber to the desktop at its roughly 50 schools, four administrative campuses and 53 libraries, according to Troy Sprenger, network systems engineer.

Doing it right

"Managers were sick of us coming in and saying 'I need more bandwidth, higher reliability, etc.,'" Sprenger said. "We are under extensive financial pressure to get it done and get it done right — or get out."

While fiber costs an extra $33/drop (see chart), Sprenger said information systems was able to persuade management in spring for the extra cost because the fiber is expected to provide at least 10 years of service without additional investment. "We were stuck in this trend of having to recable every two or three years, which was not economical," he said.

But some analysts said fiber is misunderstood in the cost arena.

"Everything comes down to cost, and on the surface copper appears to be the better deal," McClimans said. "However, reinstalling cable every five years is not cost-effective — you should get at least 10 years out of a cable infrastructure."

Fiber, *page 54*

Wireless communications

FCC modifies rules, licenses

By Michael Fitzgerald

The fog surrounding wireless communications cleared a bit recently when the Federal Communications Commission modified its spectrum allocation rules and assigned licenses to certain carriers of both narrow-band and broad-band personal communications services (PCS).

PCS is expected to offer users an alternative wireless communications medium to cellular. PCS will probably become fully operational in the next two years. Narrow-band PCS will be used for two-way paging and other types of communications that handle small bursts of data. Broad-band PCS will compete with cellular communications.

Still, the FCC maintained its policy of granting two licenses per local market to promote competition, though it will examine how well this duopoly strategy is working in the cellular phone market.

"With only two competitors in every cell, there is no pricing pressure whatsoever," said Kimball Brown, an analyst at Dataquest, Inc. in San Jose, Calif. Brown said high prices for use have limited the cellular phone market to 13 million units.

FCC takes five

The FCC established five regions for narrow-band PCS and established 47 major trading areas in those regions.

Specific FCC actions included the following:

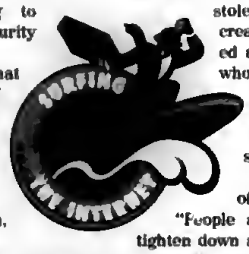
- The commission established a licensing format that allows for 11 nationwide licenses, six additional regional licenses, seven licenses for "major trading areas" and two each for "basic trading areas," such as cities.
- Based on "pioneer's preference," which rewards companies for technology innovation, the FCC assigned three licenses for broad-band PCS to Cox Communications, Inc., American Personal Communications and Omnipoint Communications, Inc. This does not preclude other companies from being granted licenses in the same metropolitan area.
- Also based on pioneer's preference, the FCC affirmed its decision last summer to grant Mobile Telecommunications Technologies, Inc. a license for narrow-band PCS. The other 10 nationwide licenses will be auctioned off in the future, according to the FCC.

Internet users batten down hatches

Security measures are on more users' minds

By James Daly and Gary H. Anthes

The widely publicized attacks on the Internet in recent weeks have splashed the open electronic playground with a dose of cold reality and sent newcomers scrambling to beef up network security plans.



"All these companies that were not even aware of the Internet now believe they can't live without it, and most are totally ignorant of the risks," said Robert Kane, a partner at Intrusion Detection, Inc. in New York.

Internet-ers have been particularly hard hit in recent times. The latest in a series of security breaches came earlier this month [CW, Feb. 14].

Security lacking

Internet veterans say the attacks are nothing new, but they may come as a shock to electronic novices. "Any network hooked on the Internet could be at risk for a security break," said James Settle, a special agent at the Federal Bureau of Investigation's national crime squad. "Most networks are very open, and security isn't very good."

In recent years, as the Internet has changed from the casual chat line of the academic and research communities to the playground of the computationally hip, attacks like the recent occurence of stolen password files have increased. The influx has created a new breed of intruder who uses sophisticated software programs designed to automatically probe the Internet looking for system weaknesses.

But a heightened sense of security is creeping in. "People are really beginning to tighten down and watch what is going on," said Ken Jones, systems and network administrator at Group One Ltd., a San Francisco stock options trading firm that uses the Internet extensively.

Jones uses routers at four sites to specify the kinds of traffic allowed into and out of the company, where connections may be made and by whom. He said he changes passwords frequently and monitors security logs for suspicious activity such as failed log-in attempts.

Experts say the most important aspect of maintaining security is the regulation

Security, *page 54*

Distributed game of doom may cause LANs to crash

By Ellis Booker

A popular game being downloaded by Internet subscribers can overload LANs, causing them to slow down or even crash, according to several sources.

Called "Doom," the real-time multiplayer game uses sophisticated three-dimensional graphics and sound. The shareware program is now being offered commercially. The game's creators could not be reached for comment.

The problem, according to experts familiar with this kind of program, is that it uses broadcast messages — up to 100 per second — to link players across a network.

Jaime Carbonell, director of the Center for Machine Translation at Carnegie Mellon University in Pittsburgh, said so-called "distributed" games such as Doom can set up "broadcast storms" as multiple sites send out and receive the game's broadcast messages.

He said the impact depends on how many sites broadcast at one time and how fully loaded the LAN is at that time.

"So far as I know, it's not going to screw up anything permanently, but it will slow up whatever nodes you broadcast through or transfer messages through," he said.

Multiplayer, real-time distributed games are relatively new, Carbonell said. The earliest, Dungeons & Dragons, used only text messages and therefore was not as taxing on networks. Carnegie Mellon originated a game in this category called Tiny Mud, which lets players jointly create an artificial world.

Another popular multiplayer game is Netrek, according to Brian Johnson, a communications consultant in White Plains, N.Y. But reports of network difficulties have focused on Doom, he said.

Double the mischief

Recent bulletin board postings on the Internet, Johnson said, indicate the game can cause two kinds of unintentional mischief for Token Ring networks, which have reported the program can lock up machines. "The other problem is it saturates networks quickly," said Johnson, who said a way to obviate this problem is to dedicate one machine as the game's server.

Finally, Johnson said, Doom's unintended impact on networks underscores a larger issue: for all the talk about collaborative, network-based computing, current networks are not up to this task. "But think about it. . .this is the direction all networks will have to go," he said.

Superhub vendors must super-persuade

By Stephen P. Klett Jr.

While users say they are encouraged by recent developments in the "superhub" arena by SynOptics Communications, Inc., Chipcom Corp. and Cabletron Systems, Inc., they plan to immerse themselves in the technology slowly.

"Today, nothing is so unique among the vendors that makes any one stand out heads and tails above the rest," said Sam Picture, vice president of telecommunications at Home Savings of America in Irwindale, Calif. "We plan to wait to see how things shake out before we make any major financial commitments."

Analysts agreed that each of the vendors face a formidable task in enticing users to commit to their platforms.

Takes convincing

"The biggest challenge for each of the hub vendors is to convince end users that this type of advanced architecture is something they really need today," said John Morency, a principal at Strategic Networks Consulting, Inc. in Rockland, Mass.

While the Big 3 offer many of the same capabilities (see chart at right), including virtual networking, analysts said Cabletron's MMAC-Plus and Chipcom's OnCore system have a leg up on SynOptics' Lattis System 5000 in terms of support for Asynchronous Transfer Mode.

SynOptics, however, said it will offer these capabilities by year's end through a modular form of its EtherCell switch, which was announced last week.

Virtual networking eliminates a lot of the work associated with wiring closet changes by allowing network administrators to create logical workgroups of users — regardless of their physical location — by cutting and pasting individual nodes on a central workstation.

The costs of physically making these moves can pile up quickly. Forrester Research, Inc. in Cambridge, Mass., estimates that network management costs associated with moves, adds and changes total $2.1 million per year for a medium-size company of 850 people.

Virtual networking is very intriguing to Home Savings, which Picture estimated spends up to $120,000 per month on visits to the wiring closet to perform about 300 changes. "The Cabletron box could eliminate the bulk of this expense," he said.

Analysts praised Cabletron for being the first to offer direct switching capabilities between multiple media. For example, the MMAC-Plus is unique because it allows the seamless connection of packet-based and cell-based networks.

A nifty next-generation package

"There's more next-generation technology in [the MMAC-Plus] than any of the other guys will deliver this year," said Valentin Sribar, a program director at Meta Group, Inc. in Westport, Conn.

The MMAC-Plus features a distributed architecture based on a single bus that eliminates the need to have dedicated management modules and internetworking modules, giving it a higher port density. Chipcom and SynOptics require users to buy separate hub modules to perform these functions.

"I love the concept of spreading management throughout the hub because of redundancy," said Pat Boyd, network engineer at Duke University in Durham, N.C. "If any one module goes down, you still have a functional hub."

Boyd said Duke plans to deploy the hub in its scientific research center to give dedicated bandwidth to individual users "so we won't have one person bogging down the network."

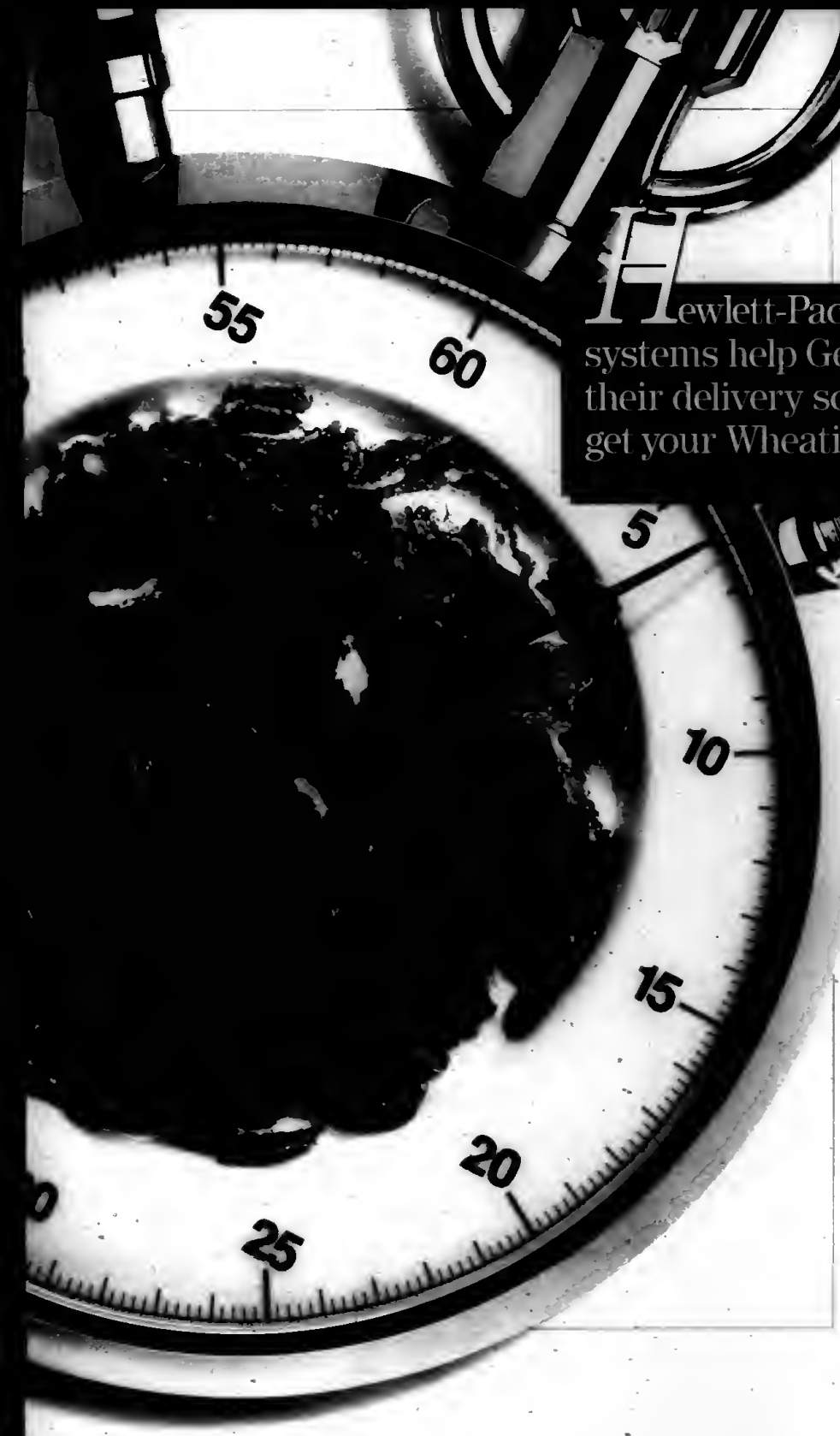
One possible advantage Chipcom has over the rest is compatibility. Users can interchange modules between its On-Line and OnCore families.

"The interchangeability gives me a tremendous advantage as the new product integrates easily into my network, and the learning curve is almost zero," said Al Herrington, communications manager at St. Jude Hospital in Memphis, which uses Chipcom equipment.

The Big 3

While more expensive than its competitors, Cabletron's Mmac-Plus offers users routing capabilities and a higher port density

Vendor/Product:	Cabletron Mmac-Plus	Chipcom OnCore	SynOptics Lattis System 5000
Bandwidth	2oG bit/sec.	13G bit/sec.	12G bit/sec.
Slots	14	17	14
Segments supported	168	100	52
Maximum port density	500	200	240
Topologies	Ethernet, Token Ring, FDDI, ATM	Ethernet, Token Ring, FDDI, ATM	Ethernet, Token Ring, FDDI
Routing	IP, IPX, DECnet, AppleTalk	No routing	No routing
Management	Spectrum for Open Systems	OnDemand Network Control System 3.0	Optivity 4.0
Starting price	$447/port	$200/port	$223/port



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– Mike Mentz,
General Mills, Information Systems

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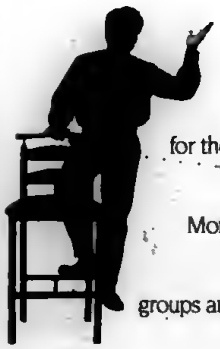

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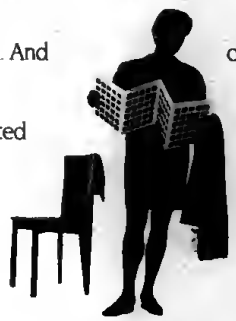

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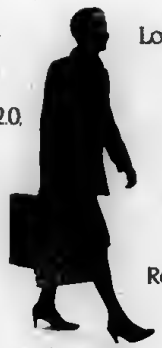

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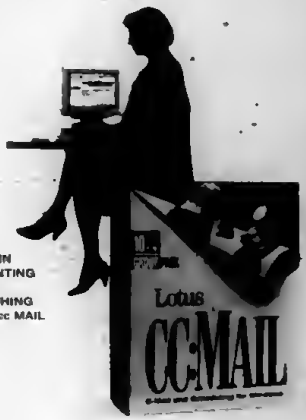

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Security measures on users' minds

CONTINUED FROM PAGE 50

of access. Procedures must accommodate two opposing requirements — the need for strict control vs. guidelines that users must follow carefully.

Limited access

For some, the best approach is to centralize and simplify access. For example, the U.S. Environmental Protection Agency set out to give all its major offices an Internet gateway. Then security concerns forced it to have all access flow through a single carefully protected site.

"It's a stand-alone server," said Brand L. Niemann, a scientist at the EPA's Environmental Statistics and Information Division. "If someone comes in and hacks, they might destroy the server and its software — which is backed up — but they can't pass themselves through to other agency resources."

One user at a large professional services firm uses InterLock from ANS Core Systems, Inc. in Elmsford, N.Y., to guard against Internet-borne mischief. It consists of software running on a "firewall" computer that controls access to the Internet and vice versa. A user-maintained rules base limits traffic going in and out by person, function performed, host, network, time of day and day of week. It can block access to any of the Internet commands that hackers often exploit.

"Anything you can do to make it look hard [to penetrate] is worthwhile," the user said. "So many people have taken no security precautions they'll go after the easy pickings out there."

It is crucial to discourage users from sharing passwords with co-workers. Software that forces users to periodically change their passwords is also useful, especially if it prevents selection of an old password. Be especially strict with user accounts that have system privileges.

Internet stats

Connected users	15 million
Connected computers	2 million
Rate of monthly growth	7% to 10%
Connected networks worldwide	21,000
Connected countries	60

Source: U.S. Department of Commerce, Washington; Internet Society, Reston, Va.

Data encryption is also important. After creating a message, an encryption program can be used to scramble it into an incomprehensible format. The encrypted file is then transmitted, and the receiving computer uses the encryption program to decrypt the data into a meaningful format.

Not surprisingly, the computer security experts at Trusted Information Systems, Inc. in Glenwood, Md., have taken extensive precautions after being hit last fall.

Encrypting a must

The company has installed firewalls at all sites and uses "challenge/response" mechanisms — which effectively encrypt passwords — to prevent the interception of plain-text passwords. "They are an absolute must," said President Stephen Walker, who added that the company will soon begin encrypting all Internet communications.

It takes some coordination to put security measures in place, but Internet veterans say the safety of your company's data hangs in the balance.

"Many folks are just oblivious," said Padgett Peterson, a security manager at Martin Marietta Electronics in Orlando, Fla. "And it's often those who don't think there is any danger who are in the greatest trouble of all."

Wolf unveils Notes, CC:Mail network service

Wolf Communications Co. in Houston has begun offering a network service for Lotus Development Corp.'s Notes and CC:Mail users. Called WorldCom, the network provides dial-up or Internet access to Notes or CC:Mail mailboxes, and it lets users connect to other electronic-mail networks.

WorldCom's main benefit is that it lets companies access wide-area services without setting up a wide-area network. WorldCom provides the CC:Mail and Notes server and the X.400 gateways to other services.

The first major WorldCom application is a Technical Support Alliance Network (TSANet). TSANet is a vendor technical support alliance that will allow member companies' technical staffs to share information via Notes databases on the WorldCom network. Full-scale implementation is slated for March 1.

TSANet members include 3Com Corp., Apple Computer, Inc., Borland International, Inc., Hewlett-Packard Co., IBM, Lotus, Microsoft Corp., Novell, Inc. and WordPerfect Corp.

— Lynda Radosevich

Fiber

CONTINUED FROM PAGE 49

With fiber's ability to handle very high bandwidth rates, this tenure is virtually guaranteed. The same cannot be said about copper, which has to be stretched to the limit to handle 100M bit/sec speeds.

The promise of longevity is what drove Raychem Corp. to install fiber to the desktop at its division in Fuquay-Varina, N.C. — a decision that was not made lightly, according to Paul Mullen, senior network engineer. "We're a very thoughtful company — we don't look to be on the bleeding edge," he said. "However, we needed something that would carry us into the future, and with fiber we're good for the next 12 to 15 years."

Mullen was given the directive to design an "economical, state-of-the-art" network that would not require continuous change and upgrading. "Fiber was the only answer," Mullen said. "And when you spread the extra 25% cost of installing the cable over a period of 12 years, we feel it will be very economical as well."

Some users, however, remain skeptical.

"An extra $30 a drop is a big deal to get approved when you've got thousands of nodes," said one network administrator at a large Midwest banking firm who asked not to be named. "It still has to come some more before we'll take a serious look."

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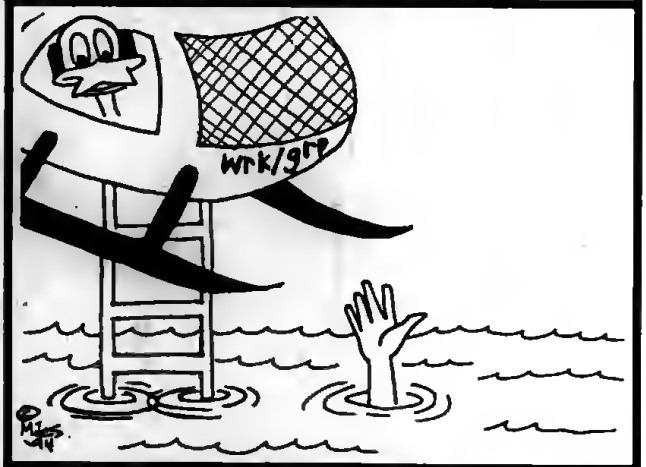

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Fiber and cable under the microscope

Both unshielded twisted-pair copper and fiber cable have their strong and weak points.

Copper, for example, is much more delicate than fiber, which leaves little margin for error during installation. Stretching or crimping the wire can hamper its ability to provide 100M bit/sec. performance.

In addition, copper is highly susceptible to electromagnetic interference, which is emitted by common office fixtures such as photocopiers and fluorescent lights. This means that more care, time and, therefore, money are needed in the planning stage to avoid this equipment.

For its part, copper Category 5 cabling is the media of choice as an interim solution to providing 100M bit/sec. speeds to the desktop.

At the moment, fiber's main claim to fame is as a backbone. However, fiber offers several advantages, including the following:

- ▶ Lower data transmission error rates than unshielded twisted pair.
- ▶ Support for high-speed transmission over longer distances, which minimizes the need to purchase devices such as hubs and repeaters.
- ▶ Support for the highest data rates of any cabling media currently under consideration for the desktop, including Asynchronous Transfer Mode speeds of 622M bit/sec. and beyond.
- ▶ Greater tensile strength copper or steel wire of the same diameter that is resistant to most of the corrosive elements that hamper copper. Relative to Category 5 unshielded twisted pair, fiber cable is 25% to 40% lighter and occupies as much as 15% less space, according to the Fiber Optic LAN Section of the Telecommunications Industry Association.

— Stephen P. Klett Jr.

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[illegible]

[illegible] UNIX DEC OSF 1 [illegible] UNIX market [illegible] AXP DEC OSF 1 [illegible] very first quarter [illegible] significantly higher than Oracle [illegible] Our results demonstrate [illegible] Oracle [illegible] DEC [illegible] UNIX [illegible]

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Noel Leca, Vice President [illegible] Unit Manager for the Gain Multiple Products Group, Sybase, Inc.

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Ford drives exclusive outsourcing deal

By Mark Halper

■ When Ford of Europe's Parts and Services Operations decided to outsource computer operations, it made one unequivocal point to prospective vendors: When it came to the automotive industry, its outsourcer was to work for Ford, and Ford alone.

The $2.4 billion Cologne, Germany-based Ford division was, after all, in the process of modernizing its inventory control, delivery and invoicing procedures into what the company said will give it an advantage in the hotly contested European market.

So what good would it do, wondered Nick Bartolini, parts and services vice president, to bring in a partner that might turn around and give a boost to Volkswagen AG, General Motors Corp., Fiat SpA or any other rival?

"I made it very clear right from the outset. If you're going to do business with Ford's Parts and Services Operations, it's us and only us in terms of the automotive industry," Bartolini said.

Earlier this month, Ford signed a five-year deal with Computer Sciences Corp. (CSC). The company will take over data centers in Cologne; Daventry, England; and Valencia, Spain; and will develop new applications geared at improving the efficiency of Ford service operations throughout Europe.

The exclusivity helps underscore the age-old concern of outsourcing customers that allowing an outsider hands-on access to the family jewels could be a competitive faux pas. Phil Watkins, CSC's European outsourcing director, noted that while information technology shops commonly raise questions of exclusivity during outsourcing negotiations, the issue is not always addressed contractually.

Although the Ford/CSC contract is "legally vague" about CSC's right to do business with Ford's competition, Bartolini and Watkins both said the spirit of the agreement confines CSC to Ford.

"We would regard it as unfriendly action" if CSC were to align itself with another automaker's parts and services program, Bartolini said.

The exclusivity also puts bite behind the pervasive bark of outsourcing vendors that claim to be customers' partners. A willingness to forego other jobs in opportunity-rich industries such as automotive instills a vested interest in contributing to the success of the customer, analysts noted.

CSC's recent European wins

Ford of Europe
February 1994

British Aerospace
November 1993, final deal expected by March

RAET (a Dutch IS service company)
November 1993

Belgacom (Belgium's state-owned phone company)
February 1994, final deal expected by March

Building a relationship

"It's good common sense," observed Susan Scrupski, editor of "The Integrator," a newsletter in Barnegat, N.J. "You don't want your outsourcer doing business with a major competitor. This shows the deepening relationship between outsourcers and their clients."

Watkins explained that while CSC has agreed not to pursue business with the parts and services operations of Ford's competitors, it might be able to pursue automotive contracts in other facets of the industry. "But before doing that, we would check with Ford to see if it was an issue with them," Watkins said.

Of course, CSC sees a sound business proposition in the Ford deal. The contract brings three European data centers with a combined 72 MIPS of IBM and Amdahl Corp. mainframe power into CSC's fold, a development that should help the El Segundo, Calif.-based outsourcer continue on its European hot streak (see chart). CSC is free to use those centers to process other customers outside the automotive industry.

Sources said the deal is worth about $100 million, a figure Bartolini described as "in the ballpark." "The value depends on how much development work Ford assigns to CSC and how quickly it wants the work done. A rush order would cost Ford more than a job requested over a longer period of time," he said.

One of the reasons Ford chose CSC was its ability to "parachute in" if Ford encountered a sudden need for technical or human resources, Bartolini said.

CSC is stepping in as the Ford Parts and Services Operations overhauls its computer systems and general procedures. Ford's aim is to help dealer service centers across Europe have an up-to-the-minute, on-line accounting of what parts are in stock or at least available from a nearby service center. A system called Dealer Computer Architecture Strategy has reduced the front-end time of locating parts from about 20 minutes to about two seconds, Bartolini claimed.

Ford has similar ambitious strides in mind for other parts operations and to that end will entrust CSC with privileged, proprietary information that in the dog-eat-dog competitiveness of the auto industry has not yet made its way to the outsourcer.

"There are some things we guard rather jealously," Bartolini said. "CSC will very shortly become involved in some of our leading-edge programs."

Software support

Digital revamps transaction strategy

By Craig Stedman

Digital Equipment Corp.'s plan to support both IBM's and Transarc Corp.'s transaction monitors on the Alpha AXP systems line gives the company a much more compelling transaction processing strategy than when it was relying solely on its own transaction processing software, industry watchers said.

"Six months ago, Digital had the most confusing transaction processing strategy in the industry, and now that has gotten flat fixed," said Wes Melling, an analyst at Gartner Group, Inc. in Stamford, Conn. The plan follows Digital's formal embrace of the IBM and Transarc products earlier this month.

Double support

Putting IBM's CICS/6000 and Transarc's Encina software on the Alpha machines will improve Digital's ability to interoperate with IBM RS/6000 systems and Hewlett-Packard Co.'s HP 9000 line, Melling said. The HP 9000 supports both CICS/6000 and Encina.

Melling also praised Digital's plan to layer CICS/6000, Encina and its own Application Control and Management System (ACMSxp) transaction monitor on top of Transarc's Encino Core Services tool kit and the Open Software Foundation's Distributed Computing Environment (DCE). That should let users create applications that can take advantage of more than one of the monitors, he noted.

Learning the lingo

While Digital is getting praise for its overall client/server software strategy, including the transaction processing plans, there is still some skepticism about the company's ability to train its much-maligned sales force to explain the intricacies of the strategy to users. "I'll believe that when I hear it getting said back by a big customer," said Wes Melling, a Gartner Group analyst.

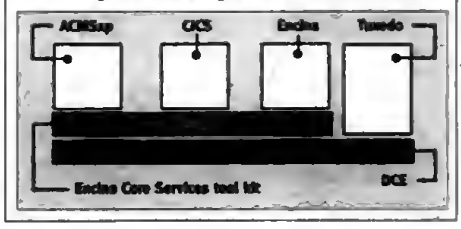
Marc Schulman, president of Technology Strategies Group, a consulting firm also based in Stamford, agreed that the licensing deals with IBM and Transarc were two of the highlights of Digital's Feb. 8 product and strategy announcement related to its so-called software frameworks [CW, Feb. 14].

Ted Faigle, group marketing manager for production systems software at Digital, said the three transaction monitors should be able to access common databases via X/Open Co.'s XA data interface standard. Digital is also working to allow different parts of an application to be split among the monitors, he added.

That will be accomplished with X/Open's Transactional Remote Procedure Call (TxRPC) specification, which Digital initially developed as part of a multivendor architecture for NTT Corp., Faigle said. TxRPC support is likely to be available in early 1995, at least for ACMSxp and Encina, he added.

Three of a kind

The three transaction processing monitors layered on top of Encina will be Digital's main offerings, in addition to AT&T's Tuxedo.



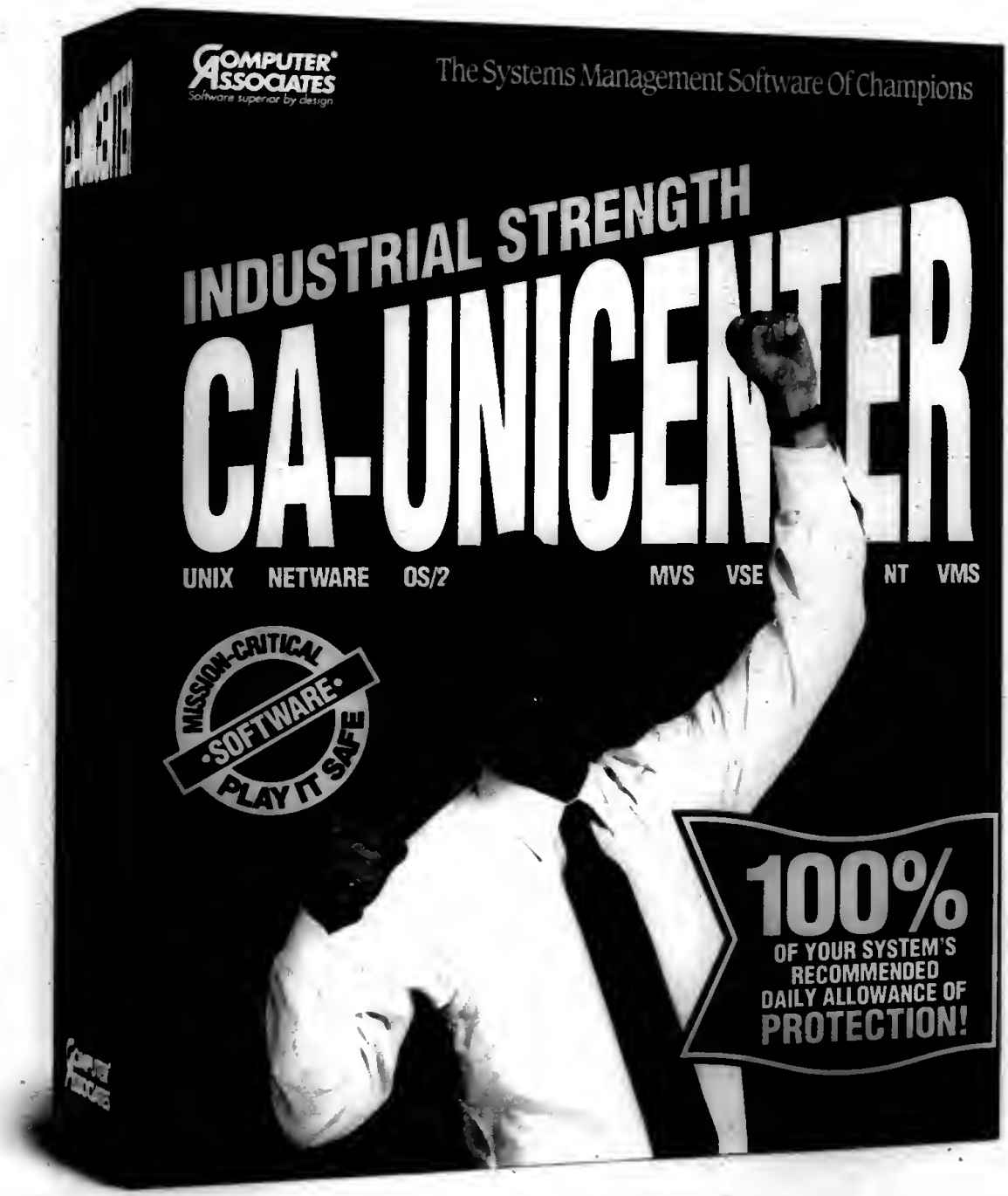
Users take a look

Allan Cobb, director of the student information systems architecture at York University in North York, Ontario, said he now expects the school to "look very closely" at an Alpha-based setup for a distributed transaction processing project that is in the planning stages.

"DCE is a key technology for us," said Cobb, who is already running DCE applications on Alpha hardware. York wants

Digital, *page 64*

How To Fortify Against Other Systems Mana



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Airline caught in Unix undercurrent

Users cite common obstacles to implementing Unix code

By Jean S. Bozman

American Airlines' Unix expertise, which has helped it create systems for its own use and for other carriers, has not prevented in-house software developers from tripping over some common implementation problems.

These problems include recompiling software to run on different Unix versions, the lack of robust systems and network management tools, and cost savings that vary by type of application.

Portability, one commonly stated reason for adopting Unix, is often accomplished through several weeks of migrating code from one Unix platform to another. "It's anywhere from a couple of weeks to two or three months, depending on the products," said John DiNovo, director of internal systems at American Airlines Decision Technologies (AADT), an in-house systems integration business unit owned by American Airlines parent AMR Corp.

What's needed

Topping the AADT developers' wish list are standards-based systems management suites that would handle job scheduling and resource management as easily as today's mainframe consoles, said Steve Clampett, AADT's vice president of development.

Even AADT's in-house systems need better resource managers. "We have about 150 G bytes of on-line magnetic storage," DiNovo said, "and we want to go out and get some third-party vendors to help us manage it." Industry analysts say they expect a new generation of systems management tools will simplify distributed computing operations by the late 1990s.

Standards of another sort, including Network File System, TCP/IP and the Open Software Foundation's Motif window manager, have already helped to create client/server applications in a Unix environment. They also help cut costs, Clampett said. "Many of these applications are fairly compute-intensive, and the only way we can economically deliver them is on a Unix platform."

Some mainframe applications tend to preempt other CPU tasks — a problem now avoided by running the Unix versions of these systems on dedicated hardware, said information systems managers at American Airlines.

What's saved

Cost savings from the new generation of Unix systems vary, users have found. AADT's original goal was to have the Unix systems it developed pay for themselves within a year [CW, July 13, 1992].

For one of AADT's first customers — American's own flight operations business unit — that was true. "We were able to buy the workstations and convert the programs to run on the workstations for less than we were paying to use the mainframe for a year," said Scott Nason, vice president of operations planning and performance at American in Fort Worth, Texas. Some 20 end users run a flight crew-scheduling application on Mips Technologies, Inc. workstations and IBM RS/6000 servers.

Maintaining the American Airlines Unix crew-scheduling system costs just "a fraction" of the 20-year-old Fortran-based system it replaced, Nason said.

But, at Lufthansa German Airlines in Frankfurt, the cost savings have not been quite as dramatic, said Hans Koch, vice president of service and customer systems. That division has an AADT-designed Unix system running on Hewlett-Packard Co. workstations and servers with an Oracle Corp. database. The value of the system, Koch said, is its ability to boost business productivity. "I'm not quite sure we save a lot of money, but I'm sure we can make more money and more revenue with these systems."

Peter Buckingham, systems director at Britannia Airways, agreed that qualitative benefits, rather than quantitative savings, stem from Unix-based decision-support and logistical systems. Gaining user-friendly interfaces and complex interactive computing is a better reason to move from mainframes to distributed Unix systems. "I think the cost argument is a bit of a red herring," Buckingham said. "I don't think you can build some of these new applications in a mainframe environment. If you're [installing Unix systems] just because you think it's cheaper, it's probably a mistake."

Taking flight

American Airlines Decision Technologies deployed a $4.5 million Unix network for client/server applications in-house in 1992. Although 30% of its systems are installed at American, outside clients include Lufthansa. Since 1989, AADT's Unix systems have included flight scheduling, yield management, pricing systems and user interfaces to reservation systems.

American Airlines' System Operations Control Center, *the heart of the carrier's operations, uses many systems developed by AADT*

CA/Newtrend marriage heads for divorce

By Thomas Hoffman

From the moment top executives at Computer Associates International, Inc. and Newtrend Group in Orlando, Fla., shook hands on a joint banking software venture in May 1991, the six-member board of directors has agreed upon only one matter: A house divided cannot stand.

The two sides are so polarized they cannot even decide how their joint venture, Newtrend L.P., should be dissolved. The dispute has led the firms to a springtime showdown in Delaware Chancery Court to determine the partnership's fate.

Prior to the partnership, Newtrend had been marketing a savings and loan product for Unisys Corp. systems called Miser2.

However, by the late 1980s, Newtrend was concerned about the financial viability of both Unisys and the savings and loan industry. The company began to explore other growth opportunities, according to Kathleen Hawk, who has been tracking the litigation between CA and Newtrend since it began last August. She is the editor of "Bank Automation News," a biweekly newsletter based in Potomac, Md.

An intermediary led Newtrend into discussions with CA, which was looking to extend its marketing channels for InfoPoint, a commercial banking product for IBM mainframes that CA acquired from Uccel Corp. in 1987.

Newtrend's Robert Lund *seeks an initial public offering to keep the unit intact*

After CA and Newtrend invested $34.5 million each in the joint venture, the entity's sales grew from $77 million in 1992 to $84.2 million in 1993.

In 1992, approximately 30% of Newtrend revenue was derived from InfoPoint software sales.

Comeback begins

Meanwhile, as Unisys rebounded financially, so did Miser2 sales. According to Newtrend's 1992 annual report, the company placed 17 new orders for the thrift software during that year.

In addition to InfoPoint and Miser2, Newtrend L.P. has released a series of new products, including Credit Union Business Environment, or CUBE, a client/server-based credit union software suite.

The two vendors have clashed on the direction of the venture since Day 1, according to both parties.

Under the original agreement, the limited partnership would be co-owned by CA and Newtrend and operated by Newtrend President and Chief Executive Robert E. King and his staff. But CA has three of the six seats on the board, including CA Chairman Charles B. Wang, who also acts as Newtrend L.P.'s chairman, and the two factions have feuded over the company's operations ever since. Both King and Wang were described by analysts as "strong personalities."

CA declined to comment on the litigation with Newtrend. However, a source close to the Islandia, N.Y., software giant said CA wants to split up the partnership so it can regain its InfoPoint software and an undisclosed sum of cash.

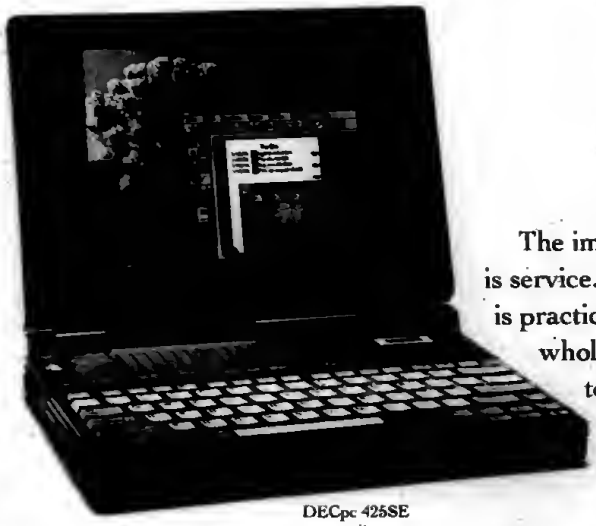
But the InfoPoint customer base has grown since the partnership and has become an integral part of Newtrend L.P., leading Newtrend executives to seek an initial public offering for the unit to keep it intact, according to Robert E. Lund, Newtrend's executive vice president and chief operating officer.

The matchmaker

Bernie Goldstein, managing director at Broadview Associates in Fort Lee, N.J., was the middleman who brought CA and Newtrend together. Goldstein, who sat on Newtrend's side of the board until last October, said he would like to see the entity remain intact. "When people don't get along, don't destroy an asset. Give it to someone else who can run it," Goldstein said.

Lund said the case is expected to be heard sometime in the second quarter this year.

Earlier this month, William B. Chandler III, Delaware Chancery Court vice chairman, denied Newtrend's application for the appointment of a liquidating trustee who would be empowered to sell the assets of the joint venture and distribute the proceeds to the partners. A court date has not yet been set.



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Health care group to test open systems

By Mitch Betts

The health care industry, which already has a plethora of data standards groups, now has a nonprofit consortium devoted to accelerating the deployment of open systems.

The Healthcare Open Systems and Trials (HOST) organization, announced Feb. 8, is intended to help solve a big problem for chief information officers in health care settings: the proliferation of proprietary systems. Surveys reveal that the top priorities for hospital CIOs are integrating various departmental systems and exchanging data with other medical facilities.

To the rescue

The industry group will also help CIOs "sort out the confusion of competing vendor claims of reliability and connectivity," as well as provide some "hard data" for technology investment decisions, said David Morgan, chairman of the HOST board of directors.

The HOST group was co-founded by Austin, Texas-based Microelectronics and Computer Technology Corp., known as MCC, and the Computer-based Patient Records Institute, based in Chicago.

HOST will have the following features:

- A network of open systems laboratories, where users and developers can test the connectivity and performance of systems before purchase or installation.
- Large-scale, multiyear "integration trials," where emerging technologies will be tested on regional information networks
- If technology gaps are identified during the trials, HOST will sponsor technology development projects by MCC.

Does the health care field really need another committee? Ed Heller, president of the Computer-based Patient Records Institute and a former CIO, said HOST will try to avoid duplicating the work of standards committees and will instead focus on laboratory and real-world tests of interoperability.

Among the organizations that are currently HOST members are 3M Co.'s 3M Health Information Systems unit, the American Health Information Management Association, the American Hospital Association, Ameritech Corp., Digital Equipment Corp., Hewlett-Packard Co., Motorola, Inc. and Sprint Corp.

Digital

CONTINUED FROM PAGE 59

to create an on-line transaction processing environment for student enrollments and course registrations.

The university, however, may start out with "a more lightweight scheme" built around the Encina tool kit only and then move to a more robust installation with transaction monitors during 1995, Cobb added.

Versions of CICS/6000, Encina and ACMSxp for the DEC OSF/1 operating system are all scheduled to ship in the second half of this year on top of Transarc's tool kit, according to Digital.

"Pieces" of the technology may also be introduced late this year for Microsoft Corp.'s Windows NT, Faigle said.

In spite of the new multiplatform strategy, Faigle and other Digital executives indicated that the company is not backing away from ACMSxp. Faigle noted that the Alpha version of the software is "completely portable" and could be supported on non-Digital hardware platforms over time.

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[redacted]

IBM Credit Corp. has introduced IBM Credit AssetNet, a database software application.

According to the Stamford, Conn., company, the product enables businesses to keep track of their owned and leased assets.

IBM Credit AssetNet is a LAN-based database program that lets users access on-line data regarding equipment model numbers, lease status and terms, location and other accounting and record-keeping essentials.

The product features a built-in communications capability with an integrated electronic-mail function that provides users with a direct link to IBM Credit.

A onetime licensing fee costs $15,000.

▶ *IBM Credit*
(203) 973-5100

BMC Software, Inc. has introduced Version 4.1 of Copy Plus for DB2, a product that produces image copies up to 10 times faster than the DB2 Version 3 Copy Utility.

According to the Houston company, Copy Plus allows data to remain on-line for both read and update processing while copies are being made.

Users can also make backup and recovery site copies from a primary copy after it has been made and registered, the company said.

Prices start at $13,000 for a perpetual license.

▶ *BMC Software*
(713) 918-8800

ShowCase Corp. has announced ShowCase Vista 3.0, a Windows-based client/server query tool.

According to the Rochester, Minn., company, ShowCase Vista 3.0 offers functionality that allows queries to be defaulted to IBM's AS/400 batch subsystem to protect system performance and build departmental decision-support databases.

Features include scrollable cursors at the PC desktop to manage large AS/400 databases, access to System/36 Interactive Data Definition Utility-described files and enhanced formatting capabilities using the ShowCase Vista 3.0 Data Viewer.

Pricing begins at $1,500 for one concurrent user.

▶ *ShowCase*
(507) 288-5922

Baber Information Services, Inc. has announced a backup module for its integrated backup and tape management software.

According to the Irving, Texas, company, Reveal Backup can automatically group libraries by user-specified criteria and, before every backup, dynamically update lists or groups and back them up.

Libraries that do not form part of any predefined group can automatically be grouped together and backed up.

Reveal Backup is a front-end module of Reveal Backup & Media Manager, an integrated product that covers backup management, tape management, report distribution and spool file management.

The module can be used at companies that have a large number of libraries or objects as well as a dynamic environment.

Prices range from $995 for an AS/400 Model F02 to $16,995 for a Model F95.

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Liant tool smooths PL/1 move to Unix

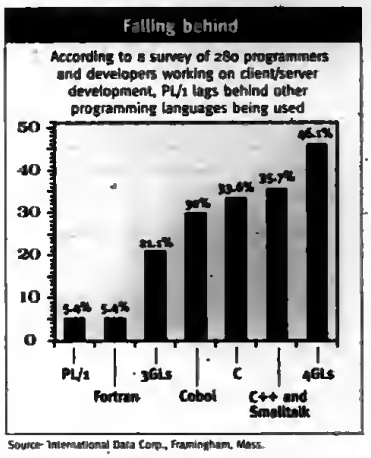
By Melinda-Carol Ballou

Liant Software Corp. recently released tools designed to migrate mainframe-oriented PL/t programs to Unix and other platforms. The company is targeting the corporate organizations that created applications — and now need to rehost them — in what was once promoted as IBM's language of choice.

Open PL/1 is a Unix tool set for PL/t applications that enables developers to offload PL/1 software from mainframes to Unix hosts, company officials said. It also allows for migration to Unix of PL/t applications residing on Digital Equipment Corp., Wang Laboratories, Inc., Data General Corp. and Computervision, Inc. platforms.

"The low-hanging fruit that most of the re-engineering tools vendors have gone after is the Cobol market ... but because of [IBM's earlier push and] the complexity of PL/1, many of those [PL/t] applications are missioo-critical, and users need an option," said Bob Lapides, a general manager for languages at Framingham, Mass.-based Liant.

"For [PL/1] users, it's significant to have an option that allows them to rehost their applications," said Wayne Eckerson, an analyst at Patricia Seybold Group, a Boston consulting firm.



Source: International Data Corp., Framingham, Mass.

Open PL/t includes a PL/t compiler, a macro preprocessor and a debugger. It is available on Unix-based Hewlett Packard Co., IBM, Sun Microsystems, Inc. and Intel Corp. 1486 and Pentium systems.

Sun and planets

The Jet Propulsion Laboratory in Pasadena, Calif., for instance, is using Open PL/1 to migrate legacy PL/t applications from a Digital VAX/VMS host to Sun SPARCstations. One of those applications was written more than 10 years ago and is being used by a "solid, established base of internal customers" to handle deep space flight predictions for the Voyager spacecraft, according to D. J. Byrne, a member of the technical staff at the lab.

Voyager was launched in 1977 and is now beyond the orbit of the planet Neptune. In addition, the Galileo probe was launched in 1989 and is still using PL/t software created to predict its flight path to Jupiter, Byrne added.

"The predictions for those spacecrafts were done a long time ago, and the [ships are] still going," he said.

The lab is moving these applications to make it easier to change the software and maintain it. "It's easier to do this on a Unix workstation because there are a variety of available development tools, windowing environments and better editors," Byrne said. "Portability is another big" advantage of Unix.

Long time running

PL/1 was created during the 1970s by IBM and positioned as IBM's programming language of choice during the '70s and '80s.

Approximately 20% of existing mainframe sites currently run PL/1 applications, according to industry analysts, compared with about 60% running Cobol.

Unix unity

The rest of the lab's ground system is moving to Unix, and there's a "current push" to bring everything together on Unix platforms, he added.

Rewriting the applications without the Liant tools would have been difficult, and receiving enough funding to do so would have been uncertain, Byrne said.

Open PL/1 is an enhanced superset of the ANSI PL/1 subset and adds a list of IBM PL/1 extensions such as controlled storage, initialization of antomatics and array cross sections.

A macro preprocessor available with Open PL/1 lets developers manipulate PL/1 code before compilation to include code from external files and replace text, for instance.

Open PL/t is shipping now, priced at $20,000 for an eight-user license.

Partnership gives Notes integration capabilities

Tools will fill gaps in coordination between SQL, Notes databases

By Michael Vizard

■ Gupta Corp. has turned to Brainstorm Technologies, Inc. in Cambridge, Mass., to help do the integration work needed to support Lotus Development Corp.'s Notes.

Under terms of the pact, Brainstorm will deliver SQL/Link for Lotus' Notes later this month. This kit will allow users of Gupta's SQL Windows tools to create applications that can read and update both SQL and Notes databases.

The Gupta tool will give Notes users a way to integrate robust user interfaces with Notes databases. Historically, Lotus has been faulted for ont providing a user interface for Notes applications that rivals the user interfaces typically found on SQL or Microsoft Corp 's Visual Basic applicatioos. Later this year, Lotus will deliver its own visual programming tool.

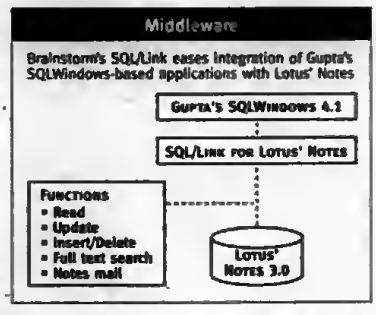
Gupta is talking to Brainstorm about incorporating SQL/Link into SQLWindows later this year and is advising customers nf its support for Brainstorm's solution today, a company spokesman said.

Delayed adoption

For many users, the lack of integration between Notes and SQL databases has been a stumbling block. For example, Edison Parking Corp. in Newark, N.J., has been waiting for a SQL link to proceed with plans for its further adoption of Notes.

Edison, which manages 140 parking lots largely in the New York area, is waiting for a SQL link between Gupta's tools and Notes to integrate Notes systems in the field with the systems in its Newark office.

Edison currently uses Notes to keep track of the discounts its local managers offer individual businesses. With information stored in Notes, managers can compare contract data to determine whether there is a successful program in one region that could be applied in another region.



Convenient, not critical

But while this tracking application nffers approximately 60 users a convenient tool for sharing this knowledge, Notes has yet to evolve into a strategic platform at Edison, according to Keith Barrows, Edison's manager of the information center.

"At this point, it's not something we couldn't live without. It's not mission-critical, but it does save us time," Barrows said.

But Barrows said he hopes to make Notes part of Edison's current mission-critical infrastructure by year's end by adding applications that read and write to both Notes and SQL databases.

"We're a Gupta shop. When we get these tools, Notes will become mission-critical," Barrows said.

Once available, this type nf capability will let Edison link the 700 to 800 documents, which contain information about the discounts local managers are offering, with a SQL database in which the company keeps the standard rates the company charges. As such, Edison will then have a tool that will allow its upper management to get a better handle on how discounts are affecting the company on a day-to-day basis, Barrows said.

Cutting edge

However, Edison may be a company ahead of its time in this regard.

Randal Zahora, president of Workgroup Productivity Corp., a Notes reseller in Oak Brook, Ill., said most companies have yet to realize the full potential of Notes integration with SQL databases.

Zahora said he expects remote, field-oriented applications running on Notes to be increasingly linked to SQL databases.

"Notes gives them the replication capabilities not found in the typical SQL database, and the SQL database provides the platform for doing quantitative analysis, which can then be fed back out to the field using Notes," Zahora said.

Code generator aids multivendor shops

By Melinda-Carol Ballou

■ Blue Sky Software Corp. is now shipping Version 5.5 of WindowsMaker Professional, a prototyping tool and code generator for Microsoft Corp.'s Windows, Win32 and Windows NT.

WindowsMaker Professional lets developers automatically generate class libraries from Borland International, Inc.'s Object Windows Library (OWL), Microsoft Corp.'s Foundation Classes (MFC) 2.5 or ANSI C code, officials at the La Jolla, Calif.-based Blue Sky said.

Some corporate developers find this support particularly important.

"I am a die-hard Microsoft person, and a lot of the people I work with are die-hard Borland people, so I [use WindowsMaker] to constantly go back and forth between the MFC and OWL versions," said Larry Harris, technical manager at Quick America, a New York-based market data provider and a subsidiary of Quick Corp. in Tokyo. "It's good to give Borland people Borland classes because they understand them," he said. "It makes everybody happy."

Using the appropriate Switch-It Code Generation Module, developers can generate C, OWL or MFC, Blue Sky officials said. Because WindowsMaker 5.5 supports a variety of languages, developers can simultaneously target Windows, Win32 and Windows NT. WindowsMaker regenerates code when users make changes and preserves the original work 100% upon regeneration, Blue Sky officials said.

WindowsMaker 5.5 supports *a variety of languages so developers can target different platforms simultaneously*

This is unlike the skeleton code generators available with Microsoft's Visual C++ or Borland's C++, known as AppWizard and AppExpert, respectively, Harris said.

"When you want to create a new application, both AppWizard and AppExpert will ask you a series of questions and generate a basic skeleton program. But if you change your mind, you have to start over again," he said. WindowsMaker, on the other hand, preserves the earlier work.

Word processing help

In addition, Blue Sky is shipping an upgrade to its RoboHelp help authoring tool that can turn Microsoft Word 6.0 and Word 2.0 for Windows into hypertext authoring tools. RoboHelp 2.5 can also automatically convert existing documentation into a help system or a help system into documentation.

It can create hot-spot graphics by placing a bit map in a help window, marking sections of it and linking each section to a different topic interactively, company officials said.

WindowsMaker 5.5 and RoboHelp 2.5 are shipping. WindowsMaker is priced at $995; the upgrade for current users costs $199. RoboHelp is priced at $499.

MVS gains automation tool

By Gary H. Anthes
RESTON, VA

Sterling Software, Inc. will soon unveil a product for automating MVS mainframe operations that beta users and analysts say goes a significant step beyond conventional message-driven automation tools.

Called Solve:Automation, Sterling's product is "service-driven," meaning it translates service objectives and policies into an automated response to problems. The approach improves systems availability and speeds problem resolution, beta users and analysts said.

Gartner Group, Inc. analyst Igor Stenmark said the policy management piece would enable a bank, for example, to specify that lines to its branches must be up between 9 a.m. and 3 p.m. and to automatically take action if a line goes down. At other times, the system might employ different problem-resolution priorities, he said.

Solve:Automation defines system resources in terms of business functions and priorities. To do that, it defines a hierarchy of system applications, subsystems and physical and logical resources that must be available for the business function to be performed. Then it monitors how well those resources are responding to meet service objectives.

For example, an operator might see icons on-screen for key applications such as general ledger, billing and credit authorization, said Doug Bertinshaw, marketing director at Sterling's Systems Management Division in Reston, Va. "When one goes red, [the operator] clicks on it and drives right down the hierarchy of resources that made up that service to find out what failed," he said.

By the time the operator has done that, Solve:Automation may have automatically started recovery procedures, Bertinshaw said.

The product is driven by an object-oriented knowledge base supplied by Sterling and augmented and tailored by the user. It catalogs systems resources and stores the organization's operations policy and procedures. Resources supported include started tasks, JES2/JES3, initiators, spool, batch jobs and I/O devices. Support for network devices will be added later.

The knowledge base also builds up historical data so that it can, for example, predict the time it takes to recover from a failure based on prior experience.

Resource prioritization

Beta user SwissAir in Zurich is replacing its message-driven automation tools with Solve:Automation. That will allow systems managers to interact with the airline's three mainframes at a higher level, said Richard Roemming, systems programmer. "We can now say, for example, that a given resource is only important between 7 a.m. and 6 p.m."

Roemming praised the product's ability to combine and summarize information from multiple systems. "You've got everything monitored, and everything has a desired state and an actual state," he said. "If they do not match and you're running it in the automated mode, it calls recovery. If it cannot recover, it [signals] an operator."

"I think technologically Sterling is ahead on this," Stenmark said. "The policy management piece on top is very unique. A lot of existing products grew from the bottom up; this was built from the top down."

A survey of MVS sites by Sterling revealed that just 30% have products that automate mainframe operations, Bertinshaw said. The consensus of those without automation was that the effort required to set up or develop conventional approaches exceeded the benefit derived from them, he said.

Solve:Automation sells for $50,000 for a Group 40 IBM mainframe. Sterling said it will roll out a similar offering for Unix environments at a later date.

[redacted]

WorkGroup Solutions has announced FlagShip 4.3, which enables Clipper programmers to develop applications under Unix.

According to the Aurora, Colo., company, FlagShip performs as a tool to move existing Clipper applications for DOS and as a true language and database for Unix.

FlagShip provides true executable code, multitasking and multiprocessing. It can handle file systems with hundreds of gigabytes. FlagShip creates C code from Clipper code and recompiles it in Unix. It has no memory limitations or royalty or runtime fees.

Prices range from $990 to $5,700, depending on the hardware, operating system and number of users. Evaluation packages are available for $290 to $390.

▶ *WorkGroup Solutions*
(303) 699-7470

Instant Information and Intel Corp. have announced the InstantCom/CAS Toolkit for multiline faxing with Intel's SatisFaxtion fax modules.

According to the Tualatin, Ore., firm, the product provides the tools and drivers developers need to create a turnkey SatisFaxtion application through either of two application programming interfaces (API): the standard DCA/Intel CAS Version 1.2 API or Instant Information's ICanFax API.

The InstantCom/CAS Toolkit can be licensed from Instant Information for $595.

▶ *Instant Information*
(503) 692-9711

VisualTools, Inc. has introduced VT-Speller, a product designed for developers of applications that support Windows.

According to the Lenexa, Kan., company, VT-Speller offers a standard spell-checking interface and 100,000-plus English language dictionary that can be integrated into a developer's new or existing application code.

It can be accessed directly by Microsoft Corp.'s Visual Basic or Visual C++ and is available as a Visual Basic Custom Control.

Features include support for additional user-specific dictionaries, support for simultaneous multiple dictionaries as well as the facilities for developers to create their own application-specific dictionaries.

VT-Speller costs $99.

▶ *VisualTools*
(913) 599-6500

Product short

Digital Information Systems Corp. has announced the port of Version 5.0 of Intersolv, Inc.'s PVCS Version Manager and PVCS Configuration Builder to the QNX operating system. PVCS Version Manager eliminates a number of security and backup problems and maintains a history of revisions to source documents. PVCS Configuration Builder is an automatic system builder that is completely integrated with PVCS Version Manager.

Cost: starts at $599 for a one- to four-user license of Version Manager and $399 for Configuration Builder. Digital Information Systems, Rancho Cordova, Calif. (916) 635-7300.

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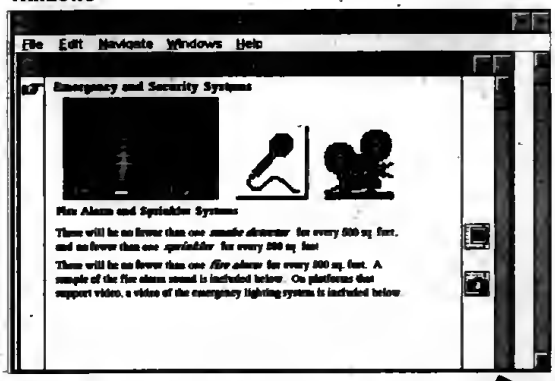
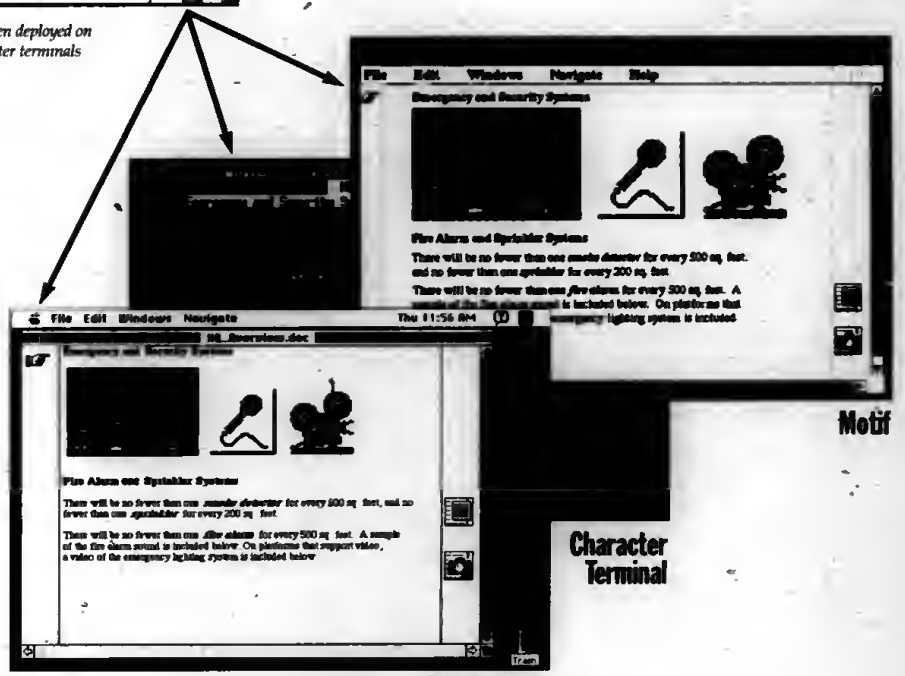
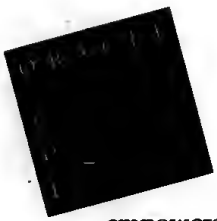


This application was designed in Windows, then deployed on Windows, Motif, Macintosh, and even Character terminals without any programming.

"CDE's portability has been a great advantage to us, having developed the original system on UNIX we were able to port with no additional code to Microsoft Windows. It also allows us to offer the system to a much wider user base than if it had been available for only one of these environments."

Chris Nicholls
Manager IS Dev.
British Telecom, UK





CDE is a complete and integrated suite of application design and modeling tools that empowers system designers, programmers, and end users to cooperate in building client/server applications quickly. CDE's CASE design, development, and graphical reporting tools eliminate extensive programming to help speed and simplify your application development efforts.

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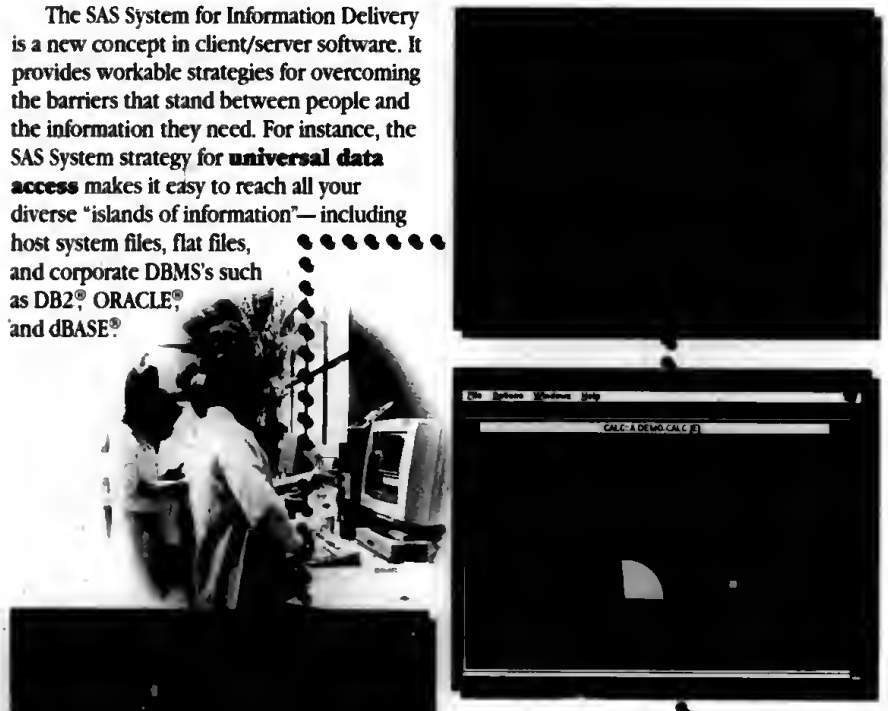

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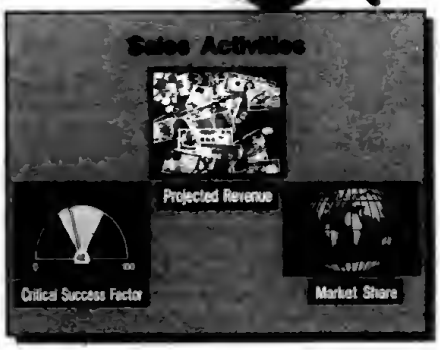

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The Newspaper of IS

IS managers who want to swim with sharks need first-class leadership training. But better shop around before you . . .

HIRE EDUCATION

By Rochelle Garner

Yessir, you're the best. From application development to administration, you've got this information technology down pat. And you just know you're the odds-on favorite to take over the whole information systems department after the hoss retires.

Don't count on it. If all you've done these past eight years is become the hest and the brightest in the IS group, you'll he the next injured seal in a sea of great whites. Shark bait, bahy.

Here's why. To manage in today's halls of business, you must speak in net present value to Jim from Finance. And answer in terms of return on investment when the president asks why all your equipment costs so much.

But speaking the language of finance represents only part of a manager's repertoire. If you're going to swim with the sharks, you must articulate IS issues in a way that's meaningful to those who hold your fate, understand how yon can solve the prohlems of others in the company and motivate your subordinates to work as a team.

In other words, you must make the transition from technical virtuoso to manager and leader.

Don't panic. No one expects you to make that kind of transformation on your own. You need an education on a higher plane. Good thing, then, that a host of business schools and private trainers insist they can help and are scramhling to turn your dollars into the skills you need to become a leader.

Do they guarantee your path to the executive washroom? Of course not. Nothing in life is certain. But by all accounts, the best of such programs do enhance your ahility to participate

Hire education, *page 74*

INSIDE: Keeping the customer ecstatic at Nypro, page 80.

Hire education

CONTINUED FROM PAGE 73

in corporate-level decisions and hone your company's business edge.

But buyer beware! Not all business schools or their programs are created equal. Many claim to produce leaders, but few have the faculty or the curricula to live up to their advertising.

That's because most MBA programs focus on the technical aspects of, say, finance, marketing and IS rather than on general management.

Schools for functionaries

Take MBA programs. If you follow this course, you face the real danger of becoming that arrogant functionary down the hall whom nobody likes. Emphasis on the word "functionary."

MBA programs typically emphasize business analysis skills, says Frank Morgan, director of executive education at the Darden Graduate School of Business at the University of Virginia in Charlottesville.

"But to be a leader, you need to instill confidence, to listen and to communicate. Without that, you're just a technocrat who's good at doing tasks but who can't inspire people. And it's these critical, soft skills that most [MBA programs] don't pay attention to."

That's one reason for the big interest in executive education programs. The key benefit, a new accent on team-building, communication and — most of all — understanding the functions in a business. So from Harvard to Stanford University and parts in between, universities are attempting to teach the touchy-feely part of management.

Management training

All share a boot-camp approach — students typically put in at least 12 hours a day — but vary in length from one week to more than a year.

Harvard University's Program for Management Development, for example, demands 13 weeks of total dedication. So total, in fact, that spouses must content themselves with three connubial visits during the course.

David Nemeth, Ohio Edison Co.'s manager of IS, traveled from Akron, Ohio, for his monastic sojourn in Cambridge, Mass.

"It was exhilarating, but not so much for the lessons as for the interaction with all the other classmates," Nemeth says. "At least 40% of the students came from outside the U.S. And to be accepted, we all had to be at a certain level, like managers or directors in a company."

So is Nemeth on a fast track to vice president? Probably not. Ohio Edison doesn't have many vice presidents and not one for technology. Still, Nemeth meets with vice presidents and senior management all the time, and today — perhaps thanks to his Program for Management Development credentials — Nemeth has a large say in Ohio Edison's new restructuring efforts.

And for sure, he glows with the pride that comes from attending one of the most prestigious executive education programs in the country. But is it one of the best? Not according to Darden's Morgan.

"In my opinion, Harvard is arrogant and out of date," he says. "It has been married to the case study. And I don't think you can teach all things well when you're wedded to one type of pedagogy. No, I definitely would not include Harvard as one of the best schools for teaching leadership."

Best of the best

Which schools would he include? His own Darden Graduate School of Business (naturally), along with the schools of business at the University of Michigan, Northwestern University and the University of Pennsylvania. For one-year programs, Morgan recommends the Sloan programs at MIT and Stanford (known on the West Coast as the school with an attitude).

But give Harvard some important credit: It advertised a student body of senior-level executives, and it delivered (at least in Nemeth's class) on that promise.

Such claims do sometimes prove bogus, however.

"It's not uncommon for universities to fill out available spots by enrolling students who fall below the executive levels their brochures advertise," says Richard Hamermesh, managing partner at the Center for Executive Development in Cambridge, Mass.

Hamermesh won't finger any culprits. But he does offer this advice: Ask for a list of names and titles of those who attended the last session.

"Find out if the schools are really putting in the classroom who they said will be there," he advises. "The whole point of these programs is to learn how others at your own level deal with the same problems."

That's the agenda at the Wharton School at the University of Pennsylvania, which offers a five-week advanced management program for chief information officers and other division heads. Students live together, eat together and study together for 16 hours a day, six days a week. More than 60% of its attendees come from outside the U.S.

The bottom line

Such a newfound outlook does not come cheaply: Prudential Insurance and Finance Services in Roseland, N.J., ponied up $25,000 to send Senior Vice President and CIO Bill Tranter away for five weeks to an executive education program.

And is he a better manager?

"I can't tell you there is one thing I took away that I applied directly," Tranter says. "For me, the single biggest benefit I took away was the people I met, but it's useful to know that others are facing similar problems."

Obviously, we are not talking bargain-basement education, but some programs are (a hit) less expensive. Hewlett-Packard Co., for example, spent about $21,000 to send Joe Beyers (who is responsible for corporate mergers, acquisitions and

Hire education, *page 79*

WHAT TO WATCH FOR

1. Check references
2. Sit in on a class that's under way
3. Read the curriculum
4. Ask for a list of previous students

If you are going to swim with the sharks, you must articulate IS issues in a way that's meaningful to those who hold your fate, understand how you can solve the problems of others in the company and motivate your subordinates to work as a team. In other words, you must make the transition from technical virtuoso to manager and leader.

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Microsoft's Windows NT operating system gives you features like RAID support, shielded applications, and domain control for networking via easy-to-use, icon-driven software. The Alpha AXP platform is RISC technology that offers twice the floating-point performance of Pentium PCs. The system that houses both is not only a super PC — it's enabling technology that allows more users across all industries to access an increasing number of high-performance applications.

Performance with a Very Bright Future

Running at 150 MHz, today's DECpc Alpha AXP system boasts performance numbers that are comparable to that of a technical workstation. And that's just for starters. In fact, while Digital's competitors are nearing the end of their RISC technology performance curve, ours has only just begun.

The reason? Digital's Alpha AXP architecture incorporates a 25-year design life. That means you can count on seeing a 200-MHz Alpha AXP PC system — 33 percent faster than today's model — introduced in the very near future. And, in time, Digital plans to deliver even higher performance systems to carry your business well into the 21st century.

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PE421-**	$4,500
DEC 3000 Model 800	
PE520-AA/BA/CA/DA	$6,000
PE520-AA/FA/GA/HA	$11,000
PE521-**	$7,600

Alpha AXP Server Purchase	Trade-in Allowance
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PE430-AA/BA/CA/DA	$3,600
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PE431-**	$4,200
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News Notes

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Every day, businesses like yours are faced with the challenge of managing and protecting corporate data effectively. Whether you're in banking, finance, health care, manufacturing, or any number of industries that support multi-gigabyte databases, the need to ensure high integrity, availability, manageability, and security of data is critical to maintaining a competitive edge.

It's a tall order for any database product to fill. But, then again, Digital's DEC Rdb is not just any database product. DEC Rdb is a proven high-performance, SQL-based relational database system that supports production (OLTP) applications, end-user information management, and application development with high levels of security and integrity as a result of industry-leading backup and restore capabilities.

And the DEC Rdb product is easy to manage. A full suite of management utilities — included with DEC Rdb software — allows you to tune, back up, restore, and restructure the database while online. In addition, the DEC Rdb product has a complete set of database design and tuning tools from the DEC DBA Workcenter. The DBA Workcenter enables administrators to monitor, at their desktops, the operation of enterprise databases on the network.

DEC Rdb software is available for OpenVMS for VAX and Alpha AXP platforms and will be delivered for the OSF/1 platform and the Windows NT operating system in 1994. In addition, the DEC Rdb product is a premiere server for open client/server desktop environments through standard interfaces such as SQL Access, Microsoft ODBC, and SQL/Services.

Such products as Visual Basic and PowerBuilder allow you to build application development environments to access DEC Rdb high-end production systems that even incorporate transaction processing capabilities. That's good news for businesses that want to incorporate UNIX systems in their heterogeneous computing environments, while at the same time maintaining a reliable production database.

DEC Rdb V6.0 Software in '94

As your premiere database server for client/server environments, DEC Rdb V6.0 software has even more features designed to help your business succeed. These include:

- A product design that meets industry standards such as SQL92, X/Open, XA, and ODBC conformance for fully distributed database environments.
- The ability to update multiple databases throughout your business — ensuring full database integrity.
- Multithreaded backup/restore capabilities that dramatically reduce the time needed to back up/restore very large databases.
- Performance enhancements in SQL2 stored procedures, sequential scanning, global buffers, and query optimization.

In addition, DEC Rdb V6.0 has been designed with extensive multimedia capabilities to efficiently store images, very large objects, documents, and full-motion video.

To receive a FREE 30-day DEC Rdb and Database Tools loaner product,
CALL 1-800 DIGITAL
and reference code YSN.

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Hire education

CONTINUED FROM PAGE 74

strategic alliances) to Darden's six-week Executive Program.

Like its Wharton counterpart, The Executive Program focuses on international and team dynamics. Such skills did not come naturally to Beyers, who rose from research and development to become manager of business development at HP.

"From Darden, I realize that a team concept is more than putting together a task force," says Beyers, who engineered HP's recent alliance with Apple Computer, Inc., IBM and Taligent, Inc. "How you position your comments, how you make assignments, how you recognize the contributions that the team members have made — that's all part of the team process."

But don't get the impression that universities are your only educational venue. Private organizations provide a quick (but not easy) way to give company executives some leadership veneer.

At the Center for Creative Leadership in Greensboro, N.C., students spend a mere 5½ days learning the ropes of team-building, decision-making and personality interpretation. And the center goes after IS professionals in a big way with its Leadership for Technical Managers course. This is possibly the only such program that uses computer simulation as a major training tool.

"Students make decisions as a group, and the simulation lets them see the impact of their decisions immediately," explains David Horth, senior program associate at the center. "We then watch what they do and how they do it."

Throw in a spin of the videotape ("Now, Fred, this is where you licked off Janice with that comment"), and you, too, can become a skilled team-builder. The center permits only one student per company per class. Cost per student: $3,100.

This go-it-alone approach probably wouldn't make sense to the Center for Executive Development's Hamermesh.

"Done right, in-house programs become forums for IS executives to hear what managers of other business units expect," Hamermesh says. "And when you put the different functions together, those managers can better address the issues that their company faces."

While the curriculum depends on the client, there's the familiar emphasis on teamwork, financial skills for nonfinancial managers, listening and communicating. And because it isn't the ivy halls of academia, the center often resorts to professional actors who teach attendees the art of expression.

If that sounds appealing, know this: Five-day, customized courses for 30 students cost about $75,000, not including the cost of room and board and up-front curriculum development.

Before passing that line item past the chief financial officer, act the smart consumer. First, check references. Next, sit in on a class that's under way. And third, read the curriculum. If it telegraphs the firm's business — even when you have no idea who the customer is — you've spotted a well-customized curriculum.

And be aware that sometimes these courses can have unanticipated results. The boot-camp education, many graduates say, has opened their eyes to new career possibilities.

"The program I took [at Case Western Reserve University] has definitely improved my ability to understand how IS fits into the organization," says Linda George, director of IS at GenCorp Automotive in Fairlawn, Ohio.

"But now I'm not so sure that becoming a corporate CIO is the career path I want to follow, especially since I think that big title sets you up as a target," George adds. "To me, you're better off being seen as a business contributor, in a small unit, who can demonstrate the benefits of your information strategy."

So are these programs worth the expense? Some are, some aren't. Just remember, it's as easy to spend $20,000 for a poor program as for a good one. ■

"To be a leader, you need to instill confidence, to listen and to communicate. Without that, you're just a technocrat who's good at doing tasks but who can't inspire people. And it's these critical, soft skills that most [MBA programs] don't pay attention to." Frank Morgan, University of Virginia

Garner is a free-lance writer in San Carlos, Calif.

Executive Track

Edward N. Altman has been appointed vice president of MIS at **Metro-Goldwyn-Mayer, Inc.** (MGM) in Santa Monica, Calif. He succeeds John Sanders, who has been appointed head of information systems at Republic/Spelling Productions. Altman will report to Executive Vice President Michael S. Hope.

He will be responsible for all IS duties at MGM, including MGM and United Artists motion picture productions, home video productions and worldwide distribution.

Altman said he is part of a new management team that MGM is bringing in to rebuild the lagging studio, with the intent to sell it in three years. Toward that goal, the studio is boosting its inventory of film productions to better position itself against industry leaders such as Warner Bros., Inc.

"MGM is fairly down right now," he said, "but we're building up a backlog of movies" for spring release.

Prior to his appointment, Altman was executive director of IS at Paramount Pictures Corp., where he was responsible for all systems support for the motion picture, studio and finance units.

Altman previously served as executive director of systems and programming at Twentieth Century-Fox Film Corp.

Carl C. Williams, 56, has been elected vice president of information technology at **Amoco Corp.** in Chicago. He replaces **John R. Reid**, who has been named vice president and controller at Amoco.

Williams' duties will include the overall direction and deployment of information technology services throughout the corporation, as well as the direct management of the information technology department. He joined Amoco in September 1993 as general manager of computing networks and operations.

Prior to that, Williams was vice president of information systems and technology at Macmillan Publishing Co. and senior vice president at DDB Needham Worldwide.

Levi Strauss North America in San Francisco, a division of Levi Strauss & Co., has announced the appointment of **Joseph K. Johnson** as director of computing and communications services. He will manage the division's information services center and its move to the Dallas area from San Francisco this summer. Johnson will report to Rich Lack, vice president of Levi Strauss North America's information resources department.

Prior to joining Levi Strauss North America, Johnson was at Electronic Data Systems Corp. in Plano, Texas, where he served for the past 12 years in various positions. Most recently, he provided operational, technical and business consulting to senior management at the distribution service center.

Brad S. Stout, 50, has been appointed chief information officer at **Thiokol Corp.** in Ogden, Utah. He will be responsible for all computer, telecommunications and information systems functions in the company.

Stout joined Thiokol in 1991 as director of IS. Prior to that, he was director of management information services at Bell Aerospace Textron/Division of Textron, Inc. in Buffalo, N.Y.

Justin Yaros has joined **MCA, Inc.**'s corporate information services as director of music entertainment group information services.

He will be responsible for the development and maintenance of all computer and information applications supporting the MCA Music Entertainment Group, which includes MCA Records and 19 other MCA record labels, UNI Distribution Corp., MCA Music Publishing, MCA Concerts, Facility Merchandising and Winterland Productions.

Yaros will report to George Brenner, director of corporate information services at MCA. Prior to joining the company, he was executive director and chief information officer of information systems at Republic Pictures.

Software Spectrum in Dallas has appointed **Robert B. Mercer** vice president and chief information officer. Prior to joining Software Spectrum, he was vice president and CIO at Lechters, Inc., which is a specialty retailer based in New Jersey.

Meg Williams has been promoted to vice president of information systems at **Highlights For Children, Inc.** in Columbus, Ohio, the nation's largest subscription children's publication. Williams was previously director of IS applications. In her new position, she will handle all computer-related activities at Highlights and will supervise a staff of 75 employees. Williams has been at Highlights since 1988.

Mays Nakashima has been appointed chief information officer at **Sytvest Management Systems Corp.** in Lanham, Md. He will be responsible for enhancing and creating critical internal information systems for accounting, distribution, desktop platforms, networks and servers. Prior to joining Sylvest, Nakashima was manager of MIS at Falcon Microsystems in Landover, Md.

Keeping the customer ecstatic

Sharing internal manufacturing process data is one way Nypro delights its quality-conscious customers

By Alan R. Earls

Nypro, Inc., a precision injection molder in the sleepy mill town of Clinton, Mass., has won a national reputation in manufacturing circles as a supplier that large, quality-conscious companies can rely on.

When Gillette Co. released the Lady Sensor razor, it contracted for the first time with an outsider to manufacture its razors. Millions of Lady Sensors later, the Boston-based personal care products giant remains wedded to Nypro.

Johnson & Johnson's Vistakon unit, the market leader in contact lenses, also relies on Nypro for key stages in its manufacture of contact lens blanks. Nypro has shipped more than 2 billion parts to Vistakon without missing a delivery date and with no defects, according to Brian Jones, Nypro's corporate vice president for quality.

Nypro has tripled sales — to the $200 million level — in just six years, while trimming its customer base from more than 600 customers to just 30.

STELLA JOHNSTON

Nypro's Dan Gorman: *Company took steps to free itself from data management to spend more time manufacturing plastics*

An open book

The key to Nypro's success lies in selecting and staying close to a particular kind of customer: one that produces high volumes of exceptionally high-quality products. Information systems has been the enabler. Most of Nypro's customers are health care and high technology firms. (Other clients include floppy disk maker Verbatim Corp. in Charlotte, N.C., and pharmaceutical giants such as Abbott Laboratories.)

Nypro accomplishes this by sharing manufacturing process information with its customers and organizing itself into small business units that focus on the needs of a single customer. Joint management teams, with customer and supplier sharing manufacturing responsibility, have also helped Nypro succeed.

Nypro's relationship with Vistakon is a good example of how IS helps the two companies share information and management oversight: To meet Vistakon's demands for quality, the companies established a joint management team.

The team decided it was critical for Vistakon to obtain manufacturing process control information so it could instantly modify the manufacturing processes at Nypro if anything was not up to standard. Because of Nypro's IS infrastructure, the company not only knew the quality of the products instantaneously but was also aware of what was being done in the process, Jones explains.

For example, Vistakon could correlate tiny variations in temperature or voltage at Nypro's injection molders with the quality of finished Acuvue contact lenses coming out of Vistakon's Jacksonville, Fla., plant.

Nypro has spent six years building up its enabling IS infrastructure. "When we started this process six years ago, we had a very traditional setup for a small manufacturer, with a System/36 and 38 for handling the business side," explains Dan Gorman, manager of corporate network technology at Nypro.

It soon became clear, however, that even the most skilled production workers would have trouble meeting the new quality goals unaided. Workers could react only after the fact to defects and had to guess at what adjustments should be made to correct them. So new process control computers were installed and linked to a server — an IBM AS/400 at the first company site in Puerto Rico.

The servers collected operational information and managed the work of individual machines while the controllers applied statistical process control techniques to produce advisories for workers on the shop floor. The process controllers reduced the guesswork.

The next step, brought about by relationships such as the one with Vistakon, was to make real-time process control data available not within Nypro but to its customers. Customers would have access to the servers and be better able to see what was happening in the production process and what steps were being taken to maintain quality control.

To do this, Nypro set up a wide-area network. Instead of dedicating joint monthly management team meetings to sort through reams of production and defect data — and then waiting to implement needed changes — managers at both firms could now tweak the process day by day and hour by hour.

"Our users loved it, but they got spoiled. They wanted something even easier," Jones says.

After more tweaking of the system, users can now get summary data that concerns them when they log on each day.

Nypro's ability to open up its internal processes to demanding customers, coupled with its joint management team approach, has won it the praise of management guru Tom Peters. "Nypro defines what's possible in customer partnering," he writes in his newsletter, "On Achieving Excellence." ■

Earls is a free-lance writer in Arlington, Mass.

Intelligence Files

European outsourcing raves

The European outsourcing market will more than double during the next four years to reach an estimated worth of $16.1 million (U.S. equivalent).

That is the latest prediction from Computing Services Markets Europe, an information service of Ovum Ltd. in London.

Outsourcing is gaining in popularity for three reasons:

1. Financial, as economic conditions in most European countries are putting pressure on companies to downsize and reduce their information systems spending. Outsourcing is seen as a way to do this.

2. Management mind-set, as many IS managers are refocusing on core business functions and outsourcing not only computing functions but also entire business functions.

3. Control, as European IS departments continue to operate under a poor reputation for meeting budgets and deadlines.

The three top American outsourcing suppliers to European markets in 1992 were Electronic Data Systems Corp., which ranked top overall among all outsourcing suppliers in Europe, with outsourcing revenue of $491 million (U.S. equivalent); Digital Equipment Corp., which was No. 2 overall, with outsourcing revenue of $323 million (U.S. equivalent); and IBM, which was No. 7 overall, with outsourcing revenue of $169 million (U.S. equivalent).

Source: Computing Services Markets Europe, an information service of Ovum Ltd., London

Exploring the global village

Have you ever seen the American Express Co. television commercial in which Toys R Us, Inc. Chairman and Chief Executive Officer Charles Lazarus dotes on the similarities in buying patterns of parents and children in Tokyo and their counterparts in Frankfurt and London?

As it turns out, Paris consumers have a lot more in common with customers in New York than Manhattanites do with their neighbors in Brooklyn or Staten Island.

These cultural differences and similarities are just a handful of the conclusions reached in a recent book on corporate expansionism titled *Global Vision: Building New Models for the Corporation of the Future*.

Global Vision, which was penned by IBM Consulting Group Vice President John L. Daniels and his wife, Caroline, a researcher at the London Business School, is based on a five-year worldwide study jointly conducted by IBM and KPMG Peat Marwick of companies striving to globalize.

High on the list of necessary requirements for companies trying to achieve a successful global vision: using information technology to attain a competitive global advantage.

Of course, this road is fraught with risks — globalizing a corporate information technology infrastructure is an expensive and long-term commitment. But as the Danielses pointed out, companies with a successful global plan are usually those that have forged strategic alliances with partners.

Case in point: Rosenbluth Travel Agency in Philadelphia used savvy partnerships and a skillful dose of information technology to more than quadruple revenue between 1990 and 1991, upping it to $5 billion.

Source: *Global Vision: Building New Models for the Corporation of the Future*, McGraw-Hill, Inc., 1993

Managing mainframe maintenance madness

Like a new parent saddled with caring for an infant alone, information systems managers are finding themselves overwhelmed by their legacy systems' constant need for care and attention. So much so, in fact, that they never have enough time or energy left for the other offspring vying for attention.

According to a recent report from Forrester Research, Inc. in Cambridge, Mass., IS executives revealed that nearly half of their department's manpower goes to simply maintaining host-based systems. The majority of those same 51 managers, all from Fortune 500 companies, said they feel that picture will not change in the immediate future.

But if companies are to take advantage of cutting-edge technologies and remain competitive, they must break through this mainframe maintenance madness, according to Forrester senior analyst Donald A. DePalma.

Obviously IS managers can't throw the baby out with the bathwater, but DePalma said they should start a deliberate migration away from these inflexible systems. He suggested large companies look at a five- to seven-year project to "rehabilitate, rehost or rebuild" their legacy systems.

The journey, which DePalma stressed "will not be painless," should have three distinct stages:

1. Embarkation, "during which accounts evaluate their legacy profiles, push easy-to-move applications off the host and open old-world data sources."

2. Transition, "in which companies use client/server versions of mainframe technologies such as CICS and CA-IDMS to rehost legacy systems to Unix."

3. Discovery, in which "MIS organizations completely overhaul host-based systems for client/server."

DePalma also said companies will have to rely on a combination of resources to make the journey successful, including internal resources, software suppliers and outsourcing.

Source: "Breaking Legacy Gridlock," Forrester Research, Inc., Cambridge, Mass.

Calendar

FEB. 27-MARCH 5

The Groupware '94 Boston Workshop Solutions Conference & Expo. Boston, Feb. 27-March 2 — Contact: The Conference Group, Scottsdale, Ariz. (602) 661-1260.

Reseller & Integrator Symposium on Document Imaging. Santa Clara, Calif., Feb. 28-March 2 — Contact: The Rheinner Group, North Scituate, Mass. (617) 545-7027.

Engineering Document Management Systems '94. Orlando, Fla., Feb. 28-March 3 — Contact: The Kalthoff Group, Cincinnati, Ohio (513) 871-6808.

Ninth Annual Computers in Libraries '94. Arlington, Va., Feb. 28-March 4 — Contact: Mecklermedia, Westport, Conn. (203) 226-6967.

Benchmarking: A Key to Business Excellence. Buffalo, N.Y., March 1-2 — Contact: Association for Manufacturing Excellence, Wheeling, Ill. (708) 520-3282.

Costing & Chargeback Workshop: Chicago, March 3-4 — A workshop that combines instructional material and in-class workshops to explore the range of costing and chargeback issues and problems. Contact: The Institute for Computer Capacity Management, Inc., Phoenix, Ariz. (602) 997-7374.

MARCH 6-MARCH 12

Automatic Data Processing (ADP) Industry Conference. Tucson, Ariz., March 7-10 — Contact: ADP, San Ramon, Calif. (510) 866-4100.

Mobile '94: A Technologic Conference & Exposition. San Jose, Calif., March 7-10 — Focus: mobile technology. Contact: Rob Johnson, Technologic Partners, New York, N.Y. (212) 696-9330.

The Fourth Annual PBXs in the '90s: Technology Trends, Strategic Applications and Market Directions. Washington, March 7-10 — Contact: Business Communications Review, Hinsdale, Ill. (800) 227-1234.

Daratech CAD/CAM, CAE Strategy Workshops. Cambridge, Mass., March 8-9 — Contact: Daratech, Inc., Cambridge, Mass. (617) 354-2339.

Computer '94 Telephony Conference & Exposition. Dallas, March 8-10 — Contact: Jim McManus, Telecom Library, Southampton, Pa. (215) 355-2886.

Re-engineering: The Implementation Perspective. San Francisco, March 8-11 — An educational seminar that will provide an introduction to both the concepts and the objectives of re-engineering, along with an analysis of the business factors that drive it. The instructor will be Michael Hammer at The Center for Re-engineering Leadership, Cambridge, Mass. Contact: Hammer and Co., Cambridge, Mass. (617) 354-5555.

The Agile Manufacturing Enterprise Forum. Austin, Texas, March 8-10 — Theme is "Exploring Ways Agile Competition and Virtual Companies Impact Your Company's Bottom Line." Contact: Agility Forum, Bethlehem, Pa. (215) 758-5516.

MARCH 13-MARCH 19

The BancA 5th Annual Executive Conference. Dallas, March 13-15 — Contact: BancA, Dallas, Texas (214) 788-0018.

1994 International Integrated Manufacturing Show & Conference. New York, March 14-17 — Contact: Manufacturing Execution Systems Association, Pittsburgh, Pa. (412) 781-3511.

Re-engineering: The Implementation Perspective. Boston, March 15-17 — Instructor will be Michael Hammer at The Center for Re-engineering Leadership, Cambridge, Mass. Contact: Hammer and Co., Cambridge, Mass. (617) 354-5555.

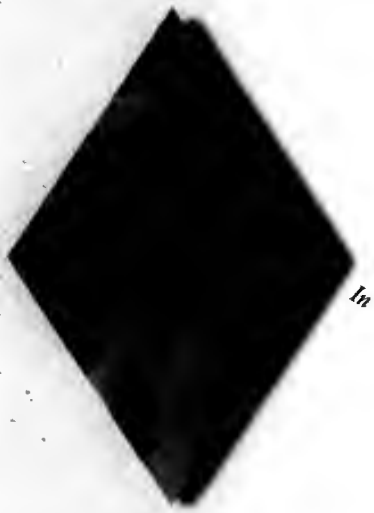
Planning and Implementing Self-Directed Work Teams. Phoenix, March 17-18 — Contact: Association for Manufacturing Excellence, Wheeling, Ill. (708) 520-0103.

MARCH 20-MARCH 26

1994 Platforms For Communication Forum. Phoenix, March 20-23 — Focus: Design of on-line videoconferencing salons, the role of traditional entertainment companies in the new world of "convergence" and the impact of government agencies and policies. Contact: Daphne Kis, ID-venture Holdings, Inc., New York, N.Y. (212) 924-6800.

NAB Multimedia World. Las Vegas, March 20-24 — Contact: Andy Peluso, NAB '94 News Media Registration, Washington, D.C. (202) 429-5350.

Freightliner Corporation is known for building some of the world's most reliable heavy-duty trucks. Which is why they just don't tolerate breakdowns. So when their existing service support computer system needed replacement, they wasted no time in looking for someone to help them with the overhaul. After all, no one wants to tell a sidelined truckdriver there's a computer delay.



Rob Hassell
Computerworld Reader
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General Manager, MIS
Freightliner Corporation

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70 Mining/Construction/Petroleum/Refining/Agric
80 Manufacturer of Computers, Computer-Related Systems or Peripherals
85 Systems Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services
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22 Dir./Mgr. Network Sys., Data/Tele. Comm., LAN Mgr. /PC Mgr., Tech Planning, Admin Svs.
23 Dir./Mgr. Sys. Development, Sys. Architecture
31 Programming Management, Software Developers
41 Engineering, Scientific R&D, Tech. Mgt.
80 Sys. Integrators/VARs/Consulting Mgt.

CORPORATE MANAGEMENT
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12 Vice President, Asst. VP
13 Treasurer, Controller, Financial Officer

DEPARTMENTAL MANAGEMENT
51 Sales & Mktg. Management
70 Medical, Legal, Accounting Mgt.

OTHER PROFESSIONAL MANAGEMENT
60 Educator, Journalists, Librarians, Students
90 Other Titled Personnel

3. Do you use, evaluate, specify, recommend, purchase (Circle all that apply)

Operating Systems
(a) Solaris (e) Mac OS
(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep
App. Development Products ❑ Yes ❑ No
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50 Business Service (except DP)
60 Government - State/Federal/Local
65 Communications Systems/Public Utilities/ Transportation
70 Mining/Construction/Petroleum/Refining/Agric
80 Manufacturer of Computers, Computer-Related Systems or Peripherals
85 Systems Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services
90 Computer/Peripheral Dealer/Dist./ Retailer
95 Other_____ (Please Specify)

2. TITLE/FUNCTION (Circle one)

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19 Chief Information Officer/Vice President/ Asst. VP IS/MIS/DP Management
21 Dir./Mgr. MIS Services, Information Center
22 Dir./Mgr. Network Sys., Data/Tele. Comm., LAN Mgr. /PC Mgr., Tech Planning, Admin Svs.
23 Dir./Mgr. Sys. Development, Sys. Architecture
31 Programming Management, Software Developers
41 Engineering, Scientific R&D, Tech. Mgt.
80 Sys. Integrators/VARs/Consulting Mgt.

CORPORATE MANAGEMENT
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13 Treasurer, Controller, Financial Officer

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70 Medical, Legal, Accounting Mgt.

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Operating Systems
(a) Solaris (e) Mac OS
(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
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ARE WE JUST PLAIN LAZY?

It is easier (and cheaper) to buy the latest, greatest software or system than to train users to maximize the systems they have. Many IS chiefs are taking the easy way out.

We don't need, and certainly don't know how to use, 90% of the persooal computing power sittiog on our desks. Yet we contiue to upgrade hardware and software as each new release becomes available.

Technology has become the panacea for all that ails us, and we have become addicted to the potion. Like any addictive substaoce, it prevents us from thinking clearly about our actioos. Like certain drugs, it has become fashionable. Technology has become a status symbol.

If you don't have the latest piece of hardware shudderiog on your desk like a rocket straining for the skies at liftoff or the latest versioo of the snazzy graphical user interface (GUI) absorbing all the power your PC can deliver, then you are a technodweeb.

IN MY VIEW BY PETER DE JAGER

The best iodication of this trend is the lemming-like behavior of the market whenever a new software release arrives. Most users do oot need the latest word processor, operating system, GUI, database or spreadsheet. Versions that were available three, four or even five years ago meet the day-to-day needs of most users.

This raises the central question regarding the use of any technology in a business organization: Why is it there?

There are only two reasons to use a computer at work — to be more efficieot or to be more effective. Our objective as managers of the tech-

Lazy, *page 86*

Lazy

CONTINUED FROM PAGE 85

nology is to deliver effectiveness and efficiency as "efficiently" as possible. We are obligated to deliver the maximum amount of productivity at minimum cost.

But do we? Consider for a moment the following experience I encountered.

A clerk in a financial institution was working with a DOS-based spreadsheet on a 286 PC. The large amount of data keyed into the computer needed to conform to specific business rules. For example, all negative amounts had to be replaced by a zero.

The clerk spent three weeks creating a large macro that examined each data cell and inserted zeros where appropriate. Unfortunately, the solution pushed the spreadsheet to an ill-defined limit, generating the error message "too many nested ifs."

The clerk called a computer person to the scene, who found that the user had created a macro more than 60 pages in length, mostly a series of if-then-else statements. This user was not lazy. He spent a great deal of time and effort writing a macro to implement a business rule. It just so happened the user did not know the correct method.

The computer person created a new section in the spreadsheet and used a built-in function to examine the individual cells, creating a modified data set. Using the copy command, this took less than five minutes. And the solution was not destructive to the data, so even if the business rules changed, the original negative data would still be available.

The cost of ignorance in this situation was three weeks of wasted effort.

Nature of the beast

This incident raises two important issues. The first stems from human nature. Once you believe you know how to do something, you ask for help only when you run into trouble, not before. If the clerk had completed the macro on page 59, he would not have contacted the computer person. The clerk would never have *needed* help. The 59-page macro would still be running today.

Don't buy into the 'user-friendly' myth

To answer the question "Do PCs increase productivity?" we must know how they are being used. As the manager concerned with questions of productivity in your organization, do you know how your PCs are being used? Are your users more productive? How many 59-page macros exist on your PCs? How many users at this very moment are implementing solutions that will take weeks of effort instead of minutes?

The second issue is the macro and its relationship to productivity. How much more "productive" will the clerk become when you upgrade the machine from a 286 to a Pentium running the latest GUI and appropriate GUI spreadsheet?

There is no doubt the clerk will be more productive — the macro will run faster. So what? It will take a long time to offset those lost weeks of programming.

If the goal is maximum productivity at the lowest cost, then a day of training usually delivers more productivity per dollar than costly hardware and software upgrades.

In my little tale from real life hell, the user did not receive the necessary training to use very powerful and sophisticated tools. In this organization, upgrading from one release to the next in search of productivity is standard operating procedure. In this organization, management believes strongly in the myth of "user-friendly" and skimps on training.

The problem is twofold. On the one hand, training is difficult. It requires talent to train people to use tools properly. It is impossible to convince people that training has had an effect once the training has taken place.

It is more difficult, in terms of delivery, to train corporate spreadsheet users to use their applications more effectively than it is to upgrade the corporate spreadsheet in the vain hope of achieving a productivity increase.

Upgrading technology, on the other hand, is relatively simple. All it takes is money, and you can upgrade until the vendors run out of product. To prove you have had an effect, all you need do is point to the hundreds of empty boxes and unopened shrink-wrapped manuals.

So, given the choice between two tasks, one difficult and hard to justify, the other easy and simple to prove, which one would you choose?

We're oblivious

The marketplace has spoken several times on this issue. We upgrade, oblivious to the fact that training is the better solution if our objective is to deliver cost-effective productivity.

It is possible to create an objective productivity improvement strategy. It requires shifting focus away from solutions and concentrating on needs.

The starting point for improving productivity is a needs analysis. You need to know what people can and cannot do with the tools they already possess. This information must be gathered in two ways, interrogation and observation.

Through interrogation, your users will tell what they are doing and what they would like to do. Interrogation will prod your users to ask the question: "Can I move text from one application to the other?"

Your observations will tell you what they are doing and what they don't know how to do. Observation will expose users abusing the technology and their valuable time and resources.

Both strategies are required to achieve an accurate picture of productivity levels. Once you know where you are, you can start planning for where you want to be. You can achieve productivity increases by training people to use specific features of existing products or by doing things differently.

You can also achieve increases in productivity by buying the specific capabilities (in the form of upgrades) necessary to complete a task. It should be possible to state specifically those features that will "force" you to perform your next upgrade. You then sit back and wait for the vendors to deliver.

In the search for productivity, strategies, upgrades and training are valid if, and only if, they are done to achieve specific predetermined goals. Upgrading because everyone else is or because you saw the product at Comdex are not sufficient reasons. Unless, of course, you are working for the last remaining corporation with money to burn. ■

De Jager is an industry speaker on topics of change, creativity and management technology and can be reached at (416) 792-8706. He is a former information center manager.

CIO REACTION

JOYCE

At BlueCross/BlueShield of Massachusetts, we are working hard to avoid the "knee-jerk" upgrade syndrome I saw many other companies fall prey to during my years as a consulting partner at Coopers & Lybrand.

I work in a company that has 6,000 employees charged with providing excellent services at ever-decreasing cost, we cannot buy the newest toy that comes on the market or automatically upgrade to new releases. Decisions to buy, upgrade or replace software and hardware must be justified by clear requirements for functionality, capacity, ease of service, cost and compatibility (networking and interoperability).

For each acquisition or upgrade, we schedule appropriate training to coincide with installation. We are evolving our training curricula to incorporate pre- and post-training proficiency measurement. Our commitment is to disciplined buying and timely training.

— Martin V. Joyce Jr., executive vice president, client services group, BlueCross/BlueShield of Massachusetts

RUNGE

The situation is not as black and white as "buy vs. upgrade." There are good reasons for upgrading hardware or software. New software may have better features. Hardware changes — for example, in client/server — mean you may get more productivity with a smaller machine. The CFO, CEO and I have wrestled with the issue of software upgrades. We have decided to re-evaluate software quarterly to ensure our recommended in-house packages continue to be the right choices. If it makes sense to change entire applications, we do so and make an investment in training.

It's not just the cost of new software or just the cost of training. It's the time it takes for users to go from being neophytes to being as proficient as they were on the old system.

— Lawrence Runge, chief information officer, Wheels, Inc.

Upgrading software is a tricky issue. In our highly networked environment, a single critical upgrade of a key product can trigger many related upgrades to keep the operation in sync. Plus, software companies create tremendous public pressure to use their newest products. Users expect IS to be on top of the most current products.

We push responsibility out to line managers. IS does provide extensive training through an outside group at no cost to the operating units. But IS can't mandate that people go to training. The responsibility for increased productivity, or success, ultimately resides with line management.

— Andy Colb, head of information systems, American Chemical Society

HART

Our philosophy about upgrades or training is this: On mission-critical systems, we stay current with new releases of software or database software. We upgrade computer hardware as required in terms of performance needs. For productivity software, such as spreadsheets and word processing, we give end users what they are comfortable with, and we upgrade when new releases seem valuable.

When a situation arises in which we may need to make a change — to make the people more productive — we refocus the application and see if retraining is necessary.

— Gene Hart, vice president, information systems, Home Office Reference Laboratories

Interviews conducted by free-lance writer Emily Leinfuss.

Computer Careers

REMOTE SUCCESS

By Dan Lyons

AT CORPORATE SOFTware, Inc., a provider of outsourced help desk support, the average support call lasts 12 minutes. However, when one of Corporate Software's customers opened a remote office recently, support time soared.

"We were spending an hour a shot with each user trying to walk them through procedures involving remote access to the network," says Loretta Brightman, manager of help desk support at Corporate Software in Canton, Mass. The biggest trouble came when users tried to transfer files to and from the main office network. Static on the line scrambled a document or users chose the wrong settings in their communications software.

Those unfamiliar with the remote office concept will find that transferring and printing are two of the biggest trouble spots for remote users. But help desk staffers should expect an even wider range of questions. "We're entering a phase of mobile computing chaos," says Bill Ablondi, vice president at BIS Strategic Decisions, a market research firm in Norwell, Mass.

Remote chaos demands a broader skill set than what is required for those who support local users. First, remote breakdowns are harder to troubleshoot. "You're not sure if the problem is the software, the modem, the phone line, the notebook or the server back at the shop," Ablondi says.

Information systems shops might consider having a remote-user specialist. Around-the-clock support, or at least extended hours, is also beneficial, says Steve Clancy, director and principal analyst for desktop support services at Dataquest Worldwide Services Group in Framingham, Mass.

The help desk at Boston law firm Ropes & Gray supports offices in New York, London and Providence, R.I., and is open from 7 a.m. until midnight. One member of the staff is particularly adept at handling remote-user calls. "He specializes in things like remote-access software, and he's more familiar with configuration settings and modems than some of the others," says David Gregson, manager of user support.

Gregson says IS can avoid some remote-user problems simply by planning well. The IS department at Ropes & Gray often consults with users before they travel to a foreign country. "We like to find out where they are going and get them set up with whatever adapters [they need] or information about the phone system," Gregson says.

Remote-access software can be a vital support tool as well.

The IS department at Banyan Systems, Inc. in Westboro, Mass., loads ReachOut from Ocean Isle Software in Vero Beach, Fla., onto all PCs in the company's 35 field offices. Support people can dial up and take control of a remote user's PC to give instructions. "They can simultaneously be on the phone and show them how to do something," says Mark Hildebrand, manager of network and computer operations.

Don Carter, network administrator for the Program Management Office, Sustaining Base Automation at Fort Belvoir, Va., says he minimized support problems among his 60 remote users simply by offering extensive classes. "We showed them how to dial out and what to do once they got into the network. After that, I've had very little to do," Carter says.

Lyons is a free-lance writer in Ann Arbor, Mich.

Who manages mobile computers?

With individual remote users often managing themselves, their control is expected to decline. It is not clear who will take over.

Percentage of respondents	1993	1996
Central IS	58%	46%
Individual users	40%	12%
Outside service	16%	2%
Non-IS managers	10%	10%
Line IS	4%	8%
No idea	2%	26%

Base: 30 companies

Source: Forrester Research, Inc., Cambridge, Mass.

Helping hand for the help desk

In a recent report, Forrester Research, Inc. warns that IS departments have underestimated the impact mobile computing will have on their organizations and advises them to make plans now for this brave, new and untethered world.

One recommended change is to redesign the help desk to support remote users. Instead of one generic organization, help desks should be segmented into units for different kinds of users. For example, an "executive reference center" would support managers and a "sales assistance desk" would support users involved in taking customer orders.

Forrester analysts also recommend outsourcing support. A remote user should repair his PC locally instead of shipping it to headquarters.

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AUTOMATIC SPEECH RECOGNITION

Can you cope?

Programmers must learn to create user-friendly voice interfaces.

By Don Burleson

Automatic speech recognition (ASR) is intended to allow a computer system to understand anyone who speaks to it, regardless of what they say. Although it has not yet fulfilled expectations, it is generating a lot of interest, and programmers should prepare to meet its challenges.

New ASR products have built-in vocabularies, but the association of words to events, such as "display the order for the customer," are done by programmers.

From the user's perspective, voice programs appear easy to use. MedTalk, an ASR product from Kol Vox, inc. in Toronto, for instance, allows complex patient scheduling and records management to be performed with voice. A physician can simply state a patient's name, which in turn invokes a procedure that extracts records from a database and allows him to verbally append the information.

But despite the simplicity, a great deal of sophisticated programming lies behind this interface. "ASR provides a task-driven interface to the computer, but programmers need an entirely new skill set to create user-friendly systems," says Dan Thompson, co-founder of Kol Vox.

A voice interface is similiar to the macro definition facility within Windows. When the macro recorder is turned on, all subsequent keystrokes are recorded. The programmer "names" the keystroke sequence, usually to a function key. When the function key is hit, the keystrokes are executed.

Voice interfaces work in much the same way. A programmer determines the keystroke sequence and defines them to the voice interface by assigning the sequence to an utterance (a spoken word or phrase). When that particular word is spoken, the keystrokes are executed.

Newer ASR systems are being developed for industry-specific applications, but many do not require programming. They simply plug and play. More general products, such as Dragon Systems, Inc.'s DragonDictate and IBM's VoiceType 2, however, can be customized, allowing programmers to create custom voice interfaces for different applications.

Other products such as voice macro tools provide an interface to voice systems and are used to associate phrases with events such as "open window" and "close document."

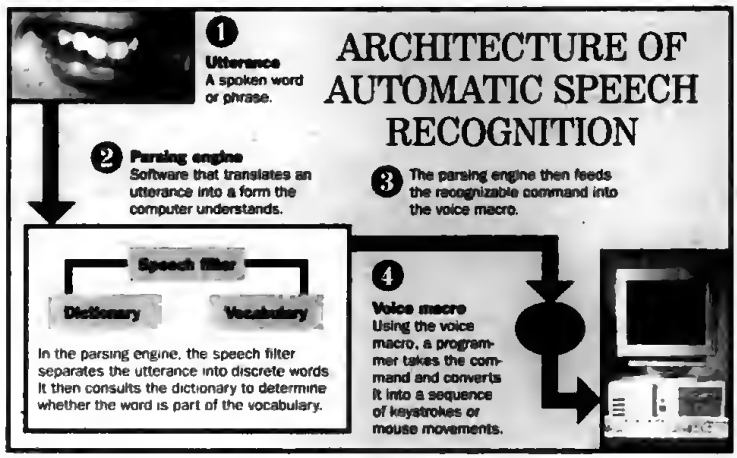
The biggest challenge for programmers is when voice macros are parameterized. A parameter is a key word that is expected to influence the sequence of events. For example, the Print utterance can have a file name parameter, so when Print Mydoc is uttered, the system takes the Mydoc file and directs it to an output device.

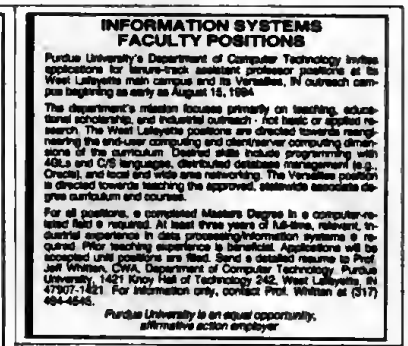
Polymorphic parameters are especially intricate. Polymorphism occurs when a word is modified by another word and causes a function change. For example, a Print utterance will invoke different procedures depending upon the destination of the print job. Print to Fax will have a very different behavior than the Print to Printer utterance.

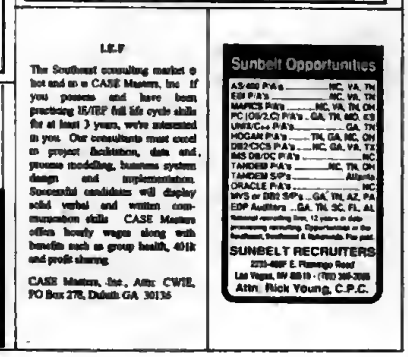
Synonyms are also problematic. A good implementation of ASR should include all utterances that possess a common meaning. For example, the Exit function should be associated with the utterances of Clear, Leave, Bye and Close. Programmers must learn to program for this ambiguity.

Despite these difficulties, experts predict that programmers will eventually be able to create ASR front ends for databases that accept user slang and shorthand. In the long term, ASR technology will eventually improve the speed and the efficiency of operations and make some tasks easier. It is only a matter of time before more companies jump on the bandwagon.

Burleson is a database administrator and author of *Practical Application of Object-oriented Techniques for Relational Databases*. He also teaches information systems at a local university.







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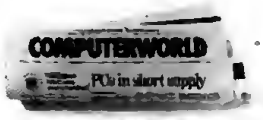

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EDI/IEF Analyst *— Design the interface to the new IEF/DB2 order processing system for EDI transactions, requiring effective project management and QA techniques to develop the Marketing related systems. Will interact with business clients, review business problems and identify solutions. Experience should emphasize systems analysis and business modeling. Comprehensive knowledge of IBM mainframe environment (MVS, IMS, DB2, TSO, DL1, etc.) essential, as is experience with IEF CASE tool.*

IEF Systems Engineers *— Utilize information engineering methodology techniques to create process and data models for current/future business requirements, plus design/develop interfaces to support transition from current to new systems environments. Experience should emphasize systems analysis, business modeling and systems development using IEF. Knowledge of IBM mainframe (MVS, IMS, DB2, TSO, DL1 and distributed systems) required; IEF tool set knowledge a plus.*

Systems Test Engineering Analyst *— Perform unit and integration test of the SPS Order Processing System. Experience required in Software Developmental Life Cycle process, testing phase, project installation background in large scale IMS, IEF, DB2 environments preferred.*

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PROGRAMMER/ANALYST: 40 hrs./wk., 8am-5pm, $36,000 /yr. Develop computer s/w systems for commercial and financial applications on IBM mainframe computers. Test case generators, conduct unit and system testing, and assist in system implementation. Require Bachelor's degree in Computer Science or Electronics Engineering, 2 yrs. expr. in job offered or 2 yrs. expr. as Systems Analyst, experience in software development on IBM 3090 mainframe computers utilizing CICS, DB2, COBOL, DMS II, IMS/DC and REXX. "Employer paid ad." E.O.E. Send resumes to: 7310 Woodward Ave., Rm. 415, Detroit, MI 48202. Ref. No: 116093.

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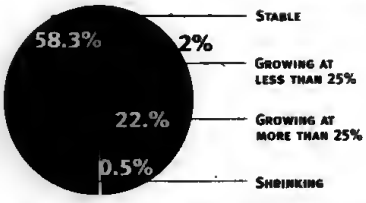

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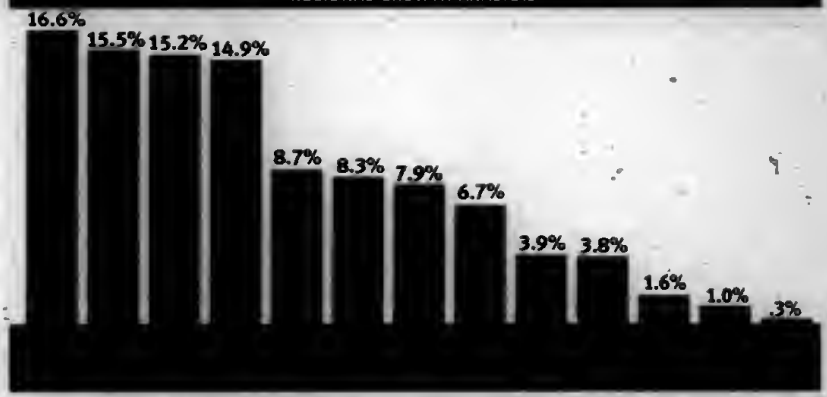

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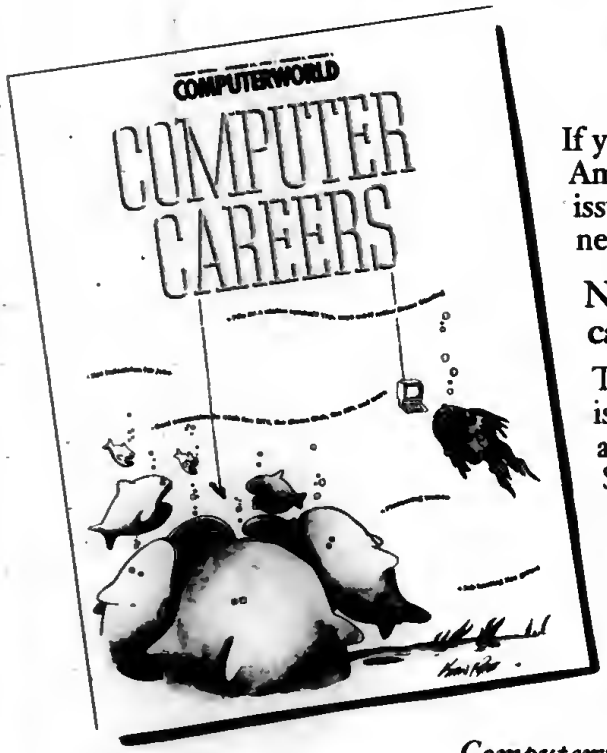

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WILL YOUR LATEST PURCHASE HOLD ITS VALUE?

By Julie Hart

Whether your company lives on the trailing edge of technology or on the bleeding edge, learning what affects the value of equipment should be a key part of your hardware asset management strategy.

Understanding residual values — the resale value of equipment after its useful life to a particular company is over — can help information systems managers decide between leasing or purchasing.

"If a piece of hardware's in-place [life] or useful life exceeds market value by 25% to 50%, you may want to buy hardware outright and depreciate it," says Bill Kirwin, vice president of personal computing at Gartner Group, Inc. in Stamford, Conn. But with laptops, a company may turn them over every 18 to 24 months. As a result, market value exceeds the in-place value, and leasing makes more sense, according to Kirwin.

When to let go

Residual value also helps you determine when to dump hardware. Analysts looking at the residual value curve for 66-MHz 486 PCs, for instance, say it is not unreasonable to take 50% off their value the first year, 30% the second and 20% the third. "After three years, it's down to scrap value," Kirwin says.

"To avoid writing off old systems, a company needs to sell its hardware before it hits the end of the life cycle," says John Graf, financial analyst at Computer Economics, Inc. in Carlsbad, Calif. To protect the longevity of their investment, managers may also want to avoid a purchase at the end of a product life cycle.

What's in the numbers

When using residual value information, IS managers can begin to spot market trends if they understand some of the driving factors behind the numbers.

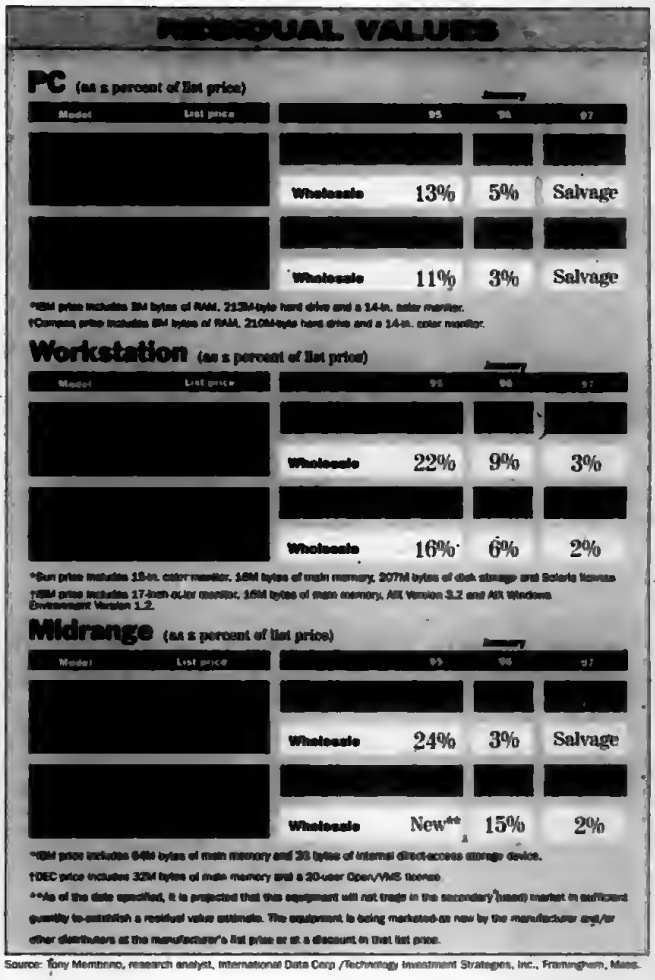
Some equipment, for example, never develops a used market. As a result, the residual value declines more quickly than with equipment that has a strong used market. Equipment that typically falls into this trap, according to analysts, includes products that do not sell well, are highly specialized or are quickly replaced by new models.

A large user base has a positive effect on residual value. For instance, while Digital Equipment Corp. has introduced its RISC-based Alpha hardware, it still has a huge VMS- and CMOS-user base because these users cannot migrate their applications directly to the RISC architecture without significant expense. "As a result, VMS and CMOS systems are holding their value well," Graf says.

Gateway 2000, Inc.'s hardware, for example, doesn't hold its value as well as other brand-name hardware, including IBM, Compaq Computer Corp. and Digital. "It doesn't mean that Gateway is a worse product, there just aren't as many people carrying Gateway on their books in large businesses," Graf says.

Finally, while technology advancement is welcomed by many IS managers, it can rapidly push down residual values. Because technology is leapfrogging itself in the PC arena, PCs are depreciating at a faster pace than workstations and midrange systems, analysts say.

Hart is a free-lance writer in San Jose, Calif.



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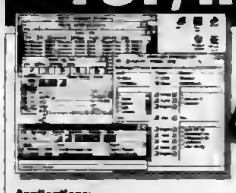

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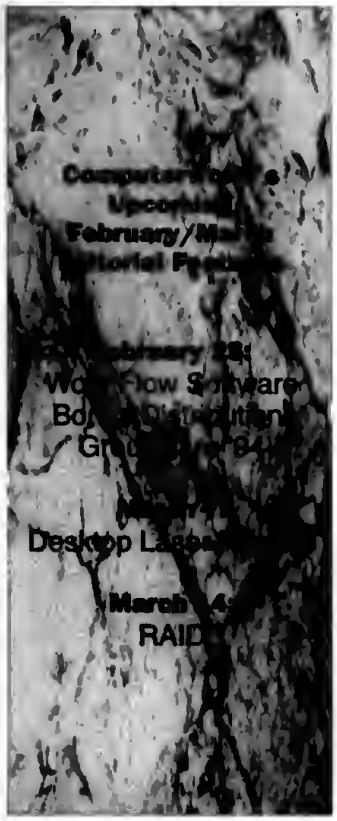

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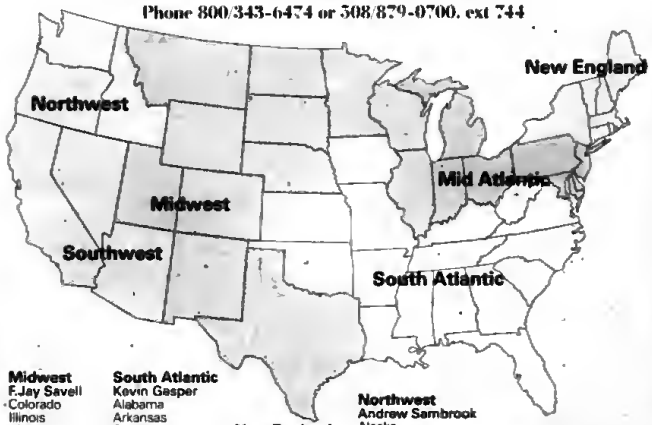

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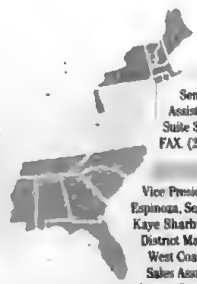

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Gainers / Losers

Percent

Gainers		Losers	
Kendall Square Research(L)	58.6	Gandalf Technologies Inc.(L)	-35.0
Optical Data Systems Inc.	25.6	Intelligent Info. Systems	-22.6
Platinum Technology	23.3	Dataram Corp.(L)	-19.8
Lotus Development	20.8	Intelligent Electronics	-13.4
Intersolv Inc.	18.1	Micropolis Corp.(L)	-12.5
Group 1 Software	15.8	Advanced Logic Research	-11.4
Network Computing Devices	16.3	Rasterops	-11.1
Novell Inc.	13.5	Zeos International Ltd.	-10.3

Dollar

Gainers		Losers	
Lotus Development	11.50	Intelligent Info. Systems	-5.38
Micron Technology	6.88	Newbridge Networks Corp.	-5.00
Texas Instruments	6.63	DSC Communications	-5.00
Motorola Inc.	5.00	Tandy Corp	-4.63
Atmel Corp.(H)	4.88	3COM Corp.(H)	-4.50
Hewlett Packard Co	4.38	Cabletron Systems(H)	-3.88
Matsushita Electronics(H)	3.50	Bellsouth Corp.	-3.75
BMC Software Inc	3.25	Intelligent Electronics	-3.38

Hewlett-Packard Co. climbed up solid quarterly earnings last week, and Lotus Development Corp. soared on the news that AT&T will provide public communications services based on Lotus' Notes.

Buying rivals as a way of life

Consolidation is still the rage in the electronic design automation (EDA) software market. Last week, **SynOpsys, Inc.** (SNPS) caught the wave and finalized its merger with **Logic Modeling Corp.** (LMC).

Robert Stern, vice president at Smith Barney Shearson, Inc., said the acquisition lets SynOpsys get a foot in the door of a new EDA market segment. Logic Modeling offers a large library of simulation models for EDA suppliers. "It's a more dynamic market" than the segments in which SynOpsys has previously focused, Stern said.

Acquisitions are a way of life in the fragmented EDA market. Alex. Brown and Sons, Inc. analyst John Marren said SynOpsys competitor **Viewlogic Systems, Inc.** (VIEW) has made two strong purchases (Vantage Analysis Systems, Inc. and Quad Design Technology, Inc.) that have contributed to Viewlogic's growth.

Cadence Design Systems, Inc. (CDN) and **Mentor Graphics, Inc.** (MENT), two firms that dominated the EDA market in the 1980s, have also bought their share of rivals. "Cadence and Mentor have made some major acquisitions over the past few years. Some helped, some hurt," he said.

Marren also said Cadence and Mentor Graphics need to continue downsizing and cutting costs to succeed against younger rivals SynOpsys and Viewlogic, which are generally more focused on the fast-growing markets.

Mentor Graphics, however, has actually outperformed SynOpsys and Viewlogic on the stock market since the beginning of 1993 (see chart below).

"I think Mentor has some excellent technology," Stern said. "Their core businesses grew about 15% in 1993. That's not bad." *—Derek Slater*

Grand designs

With the exception of Cadence, design automation software vendors have provided nice returns in the past year

Company	Price 1/4/93	Price 2/16/94	Change
Cadence Design Systems, Inc.	$24.60	$13.12	(47)%
Mentor Graphics Corp.	$8.25	$12.75	55%
Viewlogic Systems, Inc.	$18.25	$28	53%
SynOpsys, Inc.	$34.25	$46.25	35%

Exch	52-Week Range			Feb. 30 3PM	Wk Net Change	Wk Pct Change
Communications and Network Services						**OFF 1.48%**
OTC	63.25	19.63	3COM Corp. (H)	57.38	-4.50	7.3
NYS	63.56	75.50	Ameritech Corp.	41.13	0.50	1.3
NYS	65.00	51.63	AT&T	54.00	-0.38	-0.7
OTC	4.44	1.72	Aeitel Communication Corp.	3.69	0.13	3.5
OTC	26.50	12.50	Banyan Systems Inc.	15.00	-0.13	-0.8
NYS	69.13	50.78	Bell Atlantic Corp	52.75	-2.50	-4.5
NYS	63.88	50.63	Bellsouth Corp	33.63	-1.75	-4.5
NYS	17.00	4.75	Bolt, Beranek & Newman	15.13	0.88	6.1
OTC	18.25	9.50	Brooktrout Technology	14.75	0.50	3.6
NYS	125.75	74.50	Cabletron Systems (H)	120.61	3.88	3.1
OTC	39.75	13.75	Centigram Communications	36.75	0.75	2.1
OTC	57.00	26.50	Chipcom Corp	49.63	1.13	-0.2
OTC	75.88	38.75	Cisco Systems Inc. (H)	72.50	-1.88	-2.5
OTC	18.38	8.09	Compression Labs Inc.	13.25	-0.35	1.9
OTC	36.00	19.50	CrossComm	22.75	-1.50	-6.2
OTC	4.63	1.50	Data Switch Corp.	3.50	0.00	0.0
OTC	8.00	3.31	Digital Systems Int'l. Inc	3.50	-0.25	-6.7
OTC	73.13	23.50	DSC Communications	54.25	-5.00	8.4
OTC	8.63	4.00	Fibronix Int'l. Inc	4.38	0.00	0.0
OTC	3.75	0.81	Gandalf Technologies Inc. (L)	0.81	-0.44	-35.0
OTC	2.06	0.69	Gateway Communications	0.88	-0.09	-9.7
NYS	17.25	7.61	General Datacomm Inds. (H)	15.63	-1.50	-8.8
ASE	3.13	2.00	Go Video	2.38	-0.75	-9.5
NYS	39.88	12.00	GTE Corp. (L)	32.00	-0.88	3.7
NYS	101.25	73.75	ITT Corp. (H)	99.75	3.13	2.2
OTC	29.88	19.31	MCI Communications Corp.	26.63	-0.75	2.7
OTC	6.38	1.60	Microcom Inc	5.63	-0.25	-4.4
OTC	11.35	3.50	Netrix Corp	6.13	0.38	6.5
OTC	16.38	6.00	Network Computing Devices	8.00	3.00	16.3
NYS	11.13	5.38	Network Equipment Tech	8.63	0.25	3.0
OTC	21.61	8.00	Network General (H)	20.00	0.63	3.0
OTC	17.25	6.88	Network Systems Corp	8.75	0.11	1.4
OTC	73.88	32.56	Newbridge Networks Corp	58.00	-5.00	7.9
NYS	46.00	21.38	Northern Telecom Ltd.	29.88	-1.00	-3.3
OTC	35.25	17.00	Novell Inc.	24.13	2.88	13.5
NYS	48.88	38.88	Nynex Corp. (L)	38.88	1.13	-3.0
OTC	30.00	19.00	Octel Communications Corp. (H)	28.75	0.25	0.9
OTC	18.25	6.75	Optical Data Systems Inc.	13.50	2.75	25.6
OTC	7.13	3.75	Penril Data Comm Networks	6.75	0.25	3.8
OTC	27.75	14.25	PictureTel Corp. (L)	14.75	-0.75	1.7
OTC	8.25	3.63	Proteon Inc.	7.13	-0.13	1.7
NYS	38.88	17.75	Scientific Atlanta Inc	27.38	0.75	2.9
NYS	47.00	25.75	Southwestern Bell Corp.	38.13	0.00	0.9
NYS	40.25	27.13	Sprint Corp.	36.88	-0.13	-0.3
OTC	26.75	12.50	Standard Microsystems Corp.	18.38	-0.25	-5.3
OTC	39.75	10.25	Stratacom Inc.	36.25	0.35	1.6
OTC	62.75	20.00	Synoptics Communications	26.88	-0.88	3.3
OTC	10.63	2.88	Telebit Corp	9.63	-0.13	1.3
OTC	39.75	17.88	US Robotics (H)	39.38	1.50	3.9
NYS	50.75	40.13	US West Inc.	40.13	-3.00	4.7
OTC	24.50	31.00	Wellfleet Communications	77.00	-0.50	-0.7
OTC	24.25	7.25	Xircom (H)	23.75	1.00	4.6
OTC	30.00	15.25	Xyplex Inc.	17.75	0.25	1.6
PCs and Workstations						**OFF 0.71%**
OTC	5.56	2.50	Advanced Logic Research	3.86	0.50	-11.4
OTC	59.13	22.00	Apple Computer Inc.	36.25	-0.75	-2.0
OTC	33.00	12.75	AST Research Inc. (H)	31.25	0.25	0.8
NYS	5.88	2.50	Commodore Int'l.	3.13	0.13	4.2
NYS	93.75	41.75	Compaq Computer Corp. (H)	93.75	3.13	3.4
OTC	39.13	13.50	Dell Computer Corp.	20.50	0.25	1.3
OTC	25.00	16.75	Gateway 2000 Inc.	22.38	1.25	5.9
NYS	89.25	64.38	Hewlett Packard Co.	88.88	4.38	5.2
NYS	26.00	11.75	Silicon Graphics	24.88	0.13	0.5
OTC	36.50	21.13	Sun Microsystems Inc	75.75	1.00	6.8
NYS	50.75	24.63	Tandy Corp	41.63	-4.63	-10.0
OTC	5.61	2.50	Zeos International Ltd.	3.25	-0.38	-10.3
Large Systems						**UP 1.44%**
ASE	8.25	4.38	Amdahl Corp.	5.86	-0.63	9.6
NYS	7.75	3.61	Convex Computer	6.38	0.63	10.9
OTC	4.88	1.88	Cray Computer	3.25	-0.13	5.5
NYS	32.25	20.38	Cray Research Inc.	30.50	0.63	2.1
NYS	13.88	7.75	Data General Corp	7.75	-0.50	-6.1
NYS	49.35	28.63	Digital Equipment Corp.	28.63	-1.13	5.8
NYS	50.75	31.88	Harris Corp. (H)	50.75	2.50	5.2
NYS	60.00	40.63	IBM	52.38	-0.63	1.2
OTC	25.75	3.63	Kendall Square Research (L)	5.75	2.13	58.6
NYS	161.50	87.25	Matsushita Electronics (H)	161.50	3.50	2.2
OTC	18.75	12.75	NetFrame	16.75	1.00	6.6
OTC	26.00	9.25	Parallan Computer	10.38	-0.50	-4.5
OTC	23.25	11.25	Pyramid Technology	14.50	0.00	0.0
OTC	23.75	11.25	Sequent Computer Sys.	14.25	-1.38	-8.8
OTC	8.19	1.75	Sequoia Systems Inc.	5.31	-0.25	-4.5
NYS	31.25	20.35	Stratus Computer Inc	29.38	0.13	0.4
NYS	14.25	8.50	Tandem Computers Inc.	13.13	-0.25	1.9
OTC	30.00	10.63	TriCord Systems	20.75	2.00	8.8
NYS	15.25	9.88	Unisys Corp. (H)	14.75	-0.63	-4.2
Software						**UP 1.39%**
OTC	37.00	16.25	Adobe Systems Inc.	30.00	1.50	5.3
OTC	27.75	13.50	Aldus Corp	20.13	1.88	10.3
OTC	8.88	5.13	American Software Inc.	6.13	0.13	2.1
OTC	26.13	8.00	Ask Computer Systems (L)	8.13	-0.75	-3.0
OTC	56.75	37.00	Autodesk Inc	51.75	1.88	-3.5
OTC	4.50	3.38	Bachman Info. Systems	3.38	-0.11	3.6
OTC	41.00	24.00	BGS Systems Inc	25.38	0.75	3.0
OTC	68.00	38.75	BMC Software Inc.	65.75	3.75	5.2
OTC	38.25	20.38	Boole & Babbage	23.88	1.00	4.6
OTC	27.25	13.38	Borland Int'l. Inc.	12.38	-1.00	-3.5
OTC	4.63	3.75	CE Software	3.00	-0.13	-4.0
ASE	40.50	17.59	Cheyenne Software Inc. (H)	39.00	-0.38	-1.0
OTC	14.25	6.00	Cognos Inc.	11.88	0.88	-6.9
NYS	44.88	21.00	Computer Associates	38.50	1.11	3.0
NYS	6.13	2.13	Computervision Corp.	4.50	0.38	9.1
OTC	35.50	19.35	Compuware Corp. (H)	36.75	0.25	0.7
OTC	13.25	5.75	Comshare Inc	11.75	-0.25	-2.2
OTC	23.00	5.75	Corel Corp	19.00	0.13	0.7
OTC	11.25	3.38	Easel Corp	4.33	0.25	6.3
OTC	25.50	8.75	Filenet Corp	23.00	-0.50	-2.1
OTC	25.00	10.75	4th Dimension	11.75	0.63	5.6
OTC	14.25	5.75	Frame Technology	9.38	0.38	4.2
OTC	17.00	7.00	Group 1 Software	11.00	1.50	15.8
OTC	31.00	13.50	Gupta (H)	27.75	-0.50	1.8
OTC	12.00	6.13	Hogan Systems Inc.	10.13	0.25	2.5
OTC	29.50	11.25	IMRS	26.75	0.50	1.9
OTC	44.75	24.00	Information Resources (L)	27.38	1.63	6.3
OTC	37.25	13.38	Informix Corp	21.38	0.38	2.4
OTC	12.75	8.50	Intergraph Corp	10.63	0.50	4.9
OTC	10.75	4.06	Interleaf Inc.	7.50	-0.25	3.2
OTC	13.75	6.75	Intersolv Inc	12.13	1.88	18.1
OTC	28.75	7.75	Knowledgeware Inc	15.75	-0.25	1.8
OTC	47.25	15.38	Legent Corp	26.75	1.50	5.9
OTC	86.75	21.50	Lotus Development	66.75	11.50	20.8
OTC	19.75	4.25	MathSoft	6.75	0.50	0.0
OTC	13.25	4.50	McAfee Associates	8.75	-0.50	6.4
OTC	35.50	7.88	Mentor Graphics	12.75	0.63	5.2
OTC	42.33	16.33	Micro Focus	14.25	0.25	1.7
OTC	11.63	4.38	Micrografx Inc	6.75	-0.88	8.3
OTC	98.00	70.38	Microsoft Corp	79.75	1.13	1.4
OTC	37.75	14.56	Oracle Corp	33.50	1.75	5.5
OTC	64.75	22.50	Parametric Technology	34.25	1.00	3.0
OTC	30.50	21.50	PeopleSoft	90.00	1.50	-4.2
OTC	6.88	3.50	Phoenix Technologies	4.75	0.00	0.0
OTC	60.50	22.00	Powersoft	50.00	0.25	0.5
OTC	39.75	10.25	Platinum Software	13.26	1.25	9.6
OTC	18.00	7.25	Platinum Technology	12.63	2.38	23.3
OTC	80.25	32.25	Progress Software Corp	30.13	2.13	5.2
OTC	4.75	1.94	Quarterdeck Office Sys.	2.38	0.00	0.0
OTC	32.00	17.00	Rainbow Technologies Inc.	20.50	1.38	6.7
OTC	11.38	4.75	Rasterops	8.00	1.00	11.1
OTC	15.25	6.50	Ross Systems	5.76	0.13	3.7
OTC	28.75	15.50	Sapiens Intl. Corp N.V. (L)	63.00	-0.13	0.0
OTC	9.13	3.13	Softkey Software Products	4.75	0.00	0.0
OTC	14.50	6.50	Software Publishing Corp	2.13	-0.50	-0.6
OTC	17.75	8.38	Software Toolworks Inc	9.63	-0.25	2.5
OTC	2.88	1.19	Spinnaker Software	2.16	0.00	0.0
OTC	13.75	6.25	State of the Art	6.75	0.25	3.8
NYS	35.63	17.63	Sterling Software Inc.	31.75	-0.75	2.3
OTC	31.63	11.88	Structural Dynamics Research	13.75	0.50	3.8
OTC	40.00	24.00	Sybase Inc. (H)	46.00	-0.63	-1.3
OTC	20.50	9.75	Symantec Corp	14.13	-0.75	3.0
OTC	52.75	25.75	SynOpsys	43.75	0.00	2.0
OTC	34.25	10.50	System Software Assoc.	13.88	0.13	0.9
OTC	6.75	2.88	Timeric Corp	5.44	0.31	6.1
OTC	29.00	13.50	Viewlogic Systems (H)	27.25	0.25	0.9
OTC	13.35	5.38	Walker Interactive Systems	10.25	-0.13	1.0
OTC	21.88	14.00	Wang Laboratories Inc.	37.88	-0.38	2.1
OTC	2.56	0.84	Wordstar	3.38	0.88	0.0
Semiconductors						**UP [illegible]**
NYS	32.88	16.75	Advanced Micro Devices	21.88	0.63	2.6
NYS	28.00	19.00	Analog Devices Inc	27.25	0.88	3.3
OTC	65.50	15.88	Atmel Corp. (H)	45.50	4.88	12.0
OTC	7.50	2.75	Chips and Technologies	5.75	0.13	2.3
OTC	44.63	13.00	Cirrus Logic (H)	42.13	-2.50	-9.7
NYS	38.38	9.38	Cypress Semiconductor Corp. (H)	38.38	2.75	7.3
NYS	19.00	11.75	Dallas Semiconductor	17.63	0.00	0.0
OTC	74.50	42.75	Intel Corp	66.50	2.50	3.8
NYS	19.38	10.50	LSI Logic Corp.	16.38	0.75	4.8
OTC	20.75	12.75	Lattice Semiconductor	16.38	-0.38	2.5
NYS	65.00	19.25	Micron Technology	65.00	6.88	11.8
NYS	107.50	53.75	Motorola Inc	103.50	5.00	5.1
NYS	21.75	10.61	National Semiconductor	20.25	1.38	7.3
OTC	14.25	6.50	Sierra Semiconductor	8.75	0.75	9.4
NYS	84.25	91.63	Texas Instruments	79.50	6.63	9.1
OTC	16.88	6.50	VLSI Technology	11.63	-0.50	-4.1
OTC	14.38	5.13	Weitek	8.13	-0.25	0.0
ASE	13.13	1.61	Western Digital Corp	13.75	0.38	3.0
OTC	54.50	29.75	Xilinx	51.88	0.41	1.2
OTC	40.75	19.00	Zilog Inc.	32.88	2.25	7.3
Peripherals and Subsystems						**OFF [illegible]**
OTC	27.50	10.50	American Power Conversion (H)	24.75	1.88	7.0
OTC	24.25	15.50	Banctec Inc	24.25	1.15	4.9
OTC	12.25	3.50	Candle Corp	4.31	0.06	1.5
ASE	14.88	3.88	Cognitronics Corp.	4.13	0.00	0.0
NYS	20.88	9.00	Conner Peripherals	15.88	0.13	0.8
OTC	39.75	17.50	Creative Technologies Inc.	31.75	1.38	4.5
OTC	35.00	6.50	Data Race Inc	8.65	0.00	0.0
ASE	11.63	5.75	Dataram Corp. (L)	6.50	-1.50	19.8
NYS	22.00	5.13	EMC Corp	19.50	-0.13	-0.6
OTC	8.25	5.35	Emulex Corp	6.75	0.13	1.9
OTC	21.06	14.00	Evans & Sutherland	16.25	0.00	0.0
OTC	20.75	7.50	Exabyte	16.00	-1.13	-6.3
OTC	34.00	37.50	Intelligent Info. Systems	19.63	5.38	-22.6
OTC	5.63	2.38	Iomega Corp	7.50	-0.13	-4.8
OTC	9.75	5.75	IPL Systems Inc.	4.00	0.25	2.8
OTC	24.00	13.75	Komag Inc	22.75	1.50	7.1
OTC	9.50	4.38	Maxtor Corp.	5.75	-0.25	-4.3
OTC	9.25	5.25	Micropolis Corp. (L)	5.75	-0.75	-12.5
NYS	117.00	101.38	3M Corp	106.38	2.00	1.9
OTC	9.50	6.75	Orbitronix Inc.	7.38	0.38	5.4
NYS	12.25	7.50	QMS Inc	8.38	0.25	6.1
OTC	17.00	9.38	Quantum Corp.	16.63	0.38	5.8
OTC	9.13	5.13	Radius Inc.	6.94	-0.06	-0.9
NYS	17.75	31.75	Recognition Equipment	19.38	0.38	2.9
OTC	7.00	3.63	Reeon Inc.	5.00	-0.13	-2.4
OTC	26.00	13.13	Seagate Technology	34.00	-0.38	1.5
NYS	45.00	18.00	Storage Technology	34.88	-0.75	-2.1
NYS	28.25	21.38	Tektronix Inc.	26.13	-0.50	-1.9
NYS	100.25	69.88	Xerox Corp. (H)	98.00	1.25	1.8
Services						**UP 0.98%**
OTC	23.75	34.88	American Mgmt. Systems	18.88	-0.13	-0.7
NYS	4.25	2.38	Anacomp Inc	3.75	-0.13	3.3
OTC	21.50	15.75	Analysts Int'l.	15.75	1.50	-9.0
NYS	56.88	46.88	Auto Data Processing	51.00	-1.50	3.0
NYS	23.38	13.00	Ceridian Corp.	21.75	0.00	0.0
NYS	24.25	13.88	Comdisco Inc	22.88	0.88	-4.0
OTC	16.13	6.16	Computer Horizons	15.25	-0.38	2.5
NYS	38.25	23.34	Computer Sciences (H)	37.63	-0.35	-0.9
NYS	9.00	6.00	Computer Task Group	7.00	0.75	10.5
NYS	35.00	17.38	CompUSA Inc.	19.88	0.38	1.9
OTC	14.13	0.75	Control Data Systems Inc.	9.50	-0.13	-1.3
OTC	16.00	7.00	Corporate Software	15.00	0.00	0.0
OTC	11.00	6.63	Egghead Discount Software (H)	9.38	-0.50	-5.1
NYS	33.50	26.00	General Motors E (EDS)	30.50	2.13	6.8
OTC	22.75	12.75	Inacom Corp	20.00	-0.25	-1.2
OTC	28.00	13.00	Intelligent Electronics	21.88	3.38	-13.4
OTC	19.75	9.75	Merisel	16.75	-0.50	-2.6
OTC	38.04	8.00	Microage Inc	26.38	-0.86	3.2
OTC	40.33	23.10	Paychex	39.50	0.00	0.0
NYS	87.25	31.63	Policy Management Sys.	35.00	3.00	0.1
NYS	47.35	29.65	Reynolds and Reynolds (H)	47.25	0.75	1.6
OTC	29.50	13.38	SEI Corp	24.75	0.25	1.0
OTC	27.13	17.50	Shared Medical Systems	27.13	2.00	8.0
OTC	12.63	5.63	SHL Systemhouse	6.75	0.38	5.9
OTC	30.75	15.13	Software Spectrum Inc	16.38	0.75	4.8
OTC	43.75	28.00	Sungard Data Systems	38.00	-0.75	-1.9

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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Second-class postage paid at Framingham, Mass., and additional mailing offices. Posted under Canadian International Publication agreement #0385697. Computerworld (ISSN 0010-4841) is published weekly except a single combined issue for the last week in December and the first week in January by CW Publishing/Inc., 375 Cochituate Road, Box 9171, Framingham, Mass. 01701-9171. Copyright 1994 by CW Publishing/Inc. All rights reserved. Computerworld can be purchased on microfilm and microfiche through University Microfilms Inc., 300 N. Zeeb Road, Ann Arbor, Mich. 48106. Computerworld is indexed. Back issues, if available, may be purchased through the circulation department. Photocopy rights: permission to photocopy for internal or personal use is granted by CW Publishing/Inc. for libraries and other users registered with the Copyright Clearance Center (CCC), provided that the base fee of $3 per copy of the article, plus $.50 per page is paid directly to Copyright Clearance Center, 27 Congress Street, Salem, MA 01970. Reprints (minimum 500 copies) and permission to reprint may be purchased from Sharon Bryant, CW Publishing/Inc., 375 Cochituate Road, Box 9171, Framingham, Mass. 01701-9171. Requests for missing issues will be honored only if received within 60 days of issue date. Subscription rates: $6 an issue; U.S. — $48 a year; Canada — $110 a year; Central & So. America — $130 (surface), $250.00 (airmail) a year; Europe — $195 a year; all other countries — $295 a year. Four weeks notice is required for change of address. Allow six weeks for new subscription service to begin. Subscriptions call toll free (800) 669-1002. POSTMASTER: Send Form 3579 (Change of Address) to Computerworld, P.O. Box 2044, Marion, OH 43305.

Wysiwyg

Great names

Woody Woodard

Director of operations and technical services, The Home Depot, Inc., Atlanta

An Io

You've tried to figure out product introductions the scientific way. How about figuring when vendors might actually announce products based on the stars? Here it goes:

Illustration and design by Dave Marshall

March 21 - April 20	April 21 - May 20	May 21 - June 20
Products born during this time initiate action and are concerned with appearance, image and outer personality. They enable users to assert themselves based on personal desires. Announcements: GUIs.	Products born during this time enable the user to be resourceful, productive and stable and are concerned with personal resources - money, possessions and materials. Announcements: Downsizing products and services.	Products born during this time make connections in their immediate environment, learning and exchanging information to communicate and learn from others. Announcements: E-mail, printers, networks.

Quotables

"Man is still the most extraordinary computer of all."

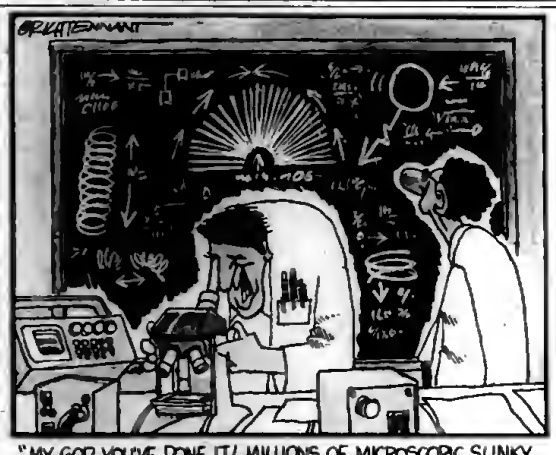
John F. Kennedy
in a 1963 speech

Variations on

✔	Identical units tested under identical conditions will not be identical in the field.
✔	Interchangeable parts won't.
✔	If a circuit cannot fail, it will.
✔	A failure will not appear until a unit has passed final inspection.

WAS ROSS PEROT'S PRESIDENTIAL BID A GLIMPSE OF THINGS TO COME? WHAT TEAM OF COMPUTER INDUSTRY PEOPLE DO YOU THINK SHOULD RUN FOR PRESIDENT AND VICE PRESIDENT, AND WHY? LET US KNOW WHAT YOU THINK (PREFERABLY HUMOROUSLY). CONTACT LORY DIX AT (800) 343-6474 X236 OR COMPUSERVE 76537,2413. IF WE USE YOUR IDEA, WE'LL SEND YOU A GIFT (BUT PLEASE LEAVE A CONTACT NUMBER)

The 5th Wave *by* Rich Tennant



"MY GOD, YOU'VE DONE IT! MILLIONS OF MICROSCOPIC SLINKY TOYS MOVING ACROSS CIRCUITS AT THE SPEED OF LIGHT FORMING THE FIRST SLINKY OPERATING SYSTEM!"

Inside Lines

Cerebral celebration

As is its wont, Novell will use the Brainshare developers conference late next month to discuss all recently announced or forthcoming products. Among the agenda items, which should shortly see the light of day, is the Novell Embedded System Technology, an upcoming architecture for embedding NetWare services in a variety of devices that range from environmental monitors to fast-food cookers. Also on the list is NetWare Interconnect LAN Service with ATM capabilities and, of course, the sundry fixes and enhancements for the upcoming NetWare 4.1.

Now hear this

Outsourcing's most bellicose pair, Electronic Data Systems and Computer Associates, went to a federal court hearing in Dallas last week to determine if certain data tapes are admissible evidence in their suits against each other, according to an EDS attorney. CA claims the tapes demonstrate software use and should be admitted as evidence that EDS is guilty of unauthorized use of CA software. EDS claims the tapes do not prove software use and wants to dispose of them. A ruling is expected this week.

Familiar (cloudy) skies

As EDS looks to the heavens for outsourcing business, it must be feeling quite a sense of deja vu. It wasn't long ago that the company agonized through more than a yearlong on-again, off-again closing of its megadeal with Continental Airlines. Now Lufthansa German Airlines is balking at the dotted line after the two companies publicly declared their intentions to do business together. EDS had expected to close the deal by now [CW, Dec. 20, 1993], but Chief Financial Officer Jody Grant told analysts recently that he's uncertain of its completion. The sides are at odds over ownership of a joint venture involved with the potential $2 billion deal. EDS is meeting with the board of the government-owned airline this week.

Ties that bind . . .

Solbourne Computer plans to announce a major program next week to recruit first-time client/server users by partnering with Oracle. Under the plan, Solbourne will provide SPARC-based symmetric multiprocessing servers, Oracle Financials and other applications and consulting help for getting the bundle installed and running smoothly. Solbourne tossed aside its history as a largely scientific and engineering firm about 18 months ago to remake itself as a source for hardware/software package deals, focused mainly on Oracle.

Ties that don't

The Data Link Switching (DLS) Workgroup decided last week to change its status from a SIG (special interest group) within IBM's APPN Implementors Forum to a RIG (related interest group), which is less subject to IBM control, a group spokeswoman said. The group also decided to begin the process of making DLS, the TCP/IP-based SNA routing protocol, an IETF standard by having a birds-of-a-feather session at the next IETF meeting in March.

Warehouse managers wanted

Hewlett-Packard is beta-testing middleware for administering distributed data warehouses, a capability that analysts say is in short supply at present. HP says it expects Intelligent Warehouse software to be ready by late March.

IBM's delay in shipping symmetric multiprocessing versions of its PS/2 195 and 295 superservers, which were slated for last fall and then pushed to the first quarter, is hurting the company, many observers agree. Regardless, IBM continues to be vague about when the boxes will appear. "I don't know when you'll see the 295," said Michael Coleman, newly appointed general manager at the IBM PC Co. server division, last week. "I've been looking at all the product lines and seeing what needs emphasis and what doesn't." Phone, fax or CompuServe News Editor MaryFran Johnson with news tips at (800) 343-6474, (508) 875-8931 or 76537,2413, respectively. Or try Computerworld's 24-hour voice-mail tip line at (508) 820-8555.

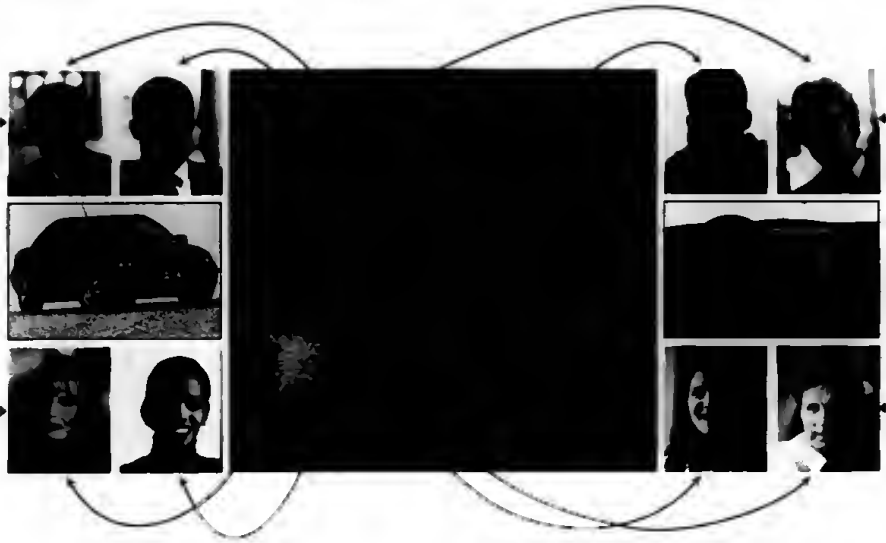
Computerworld Editorial (January-June, 1994)

Issue Dates	Ad Closings Color*	B&W	Editorial Features	Show Distribution	Ad Readership Study Issue	Response Card Deck
Dec. 27 & Jan. 3	Dec. 10	Dec. 17	**Special Edition:** Annual Forecast Issue			
Jan. 10	Dec. 24	Dec. 31	**Closer Look:** Object Database Management Systems		Starch	Mails: Jan. 12 Close: Dec. 11
Jan. 17	Dec. 31	Jan. 7	**CW Guide To: Spreadsheets and Spreadsheet Utilities** The New Capabilities *Buyers' Satisfaction Scorecard:* Windows Packages from Borland, Lotus, Microsoft, etc. *Firing Line:* Latest Windows Offering			
Jan. 24	Jan. 7	Jan. 14	**Closer Look:** ATM	**ComNet** Washington D.C., 1/25 - 1/27		
Jan. 31	Jan. 14	Jan. 21	**CW Guide To: Departmental Servers and Superservers** Matching a System to Departmental Needs (including Alpha, Tricord, Netframe, Sun, RS/6000, NCR, Sequent, Wyse, Compaq) *Buyers' Satisfaction Scorecard:* Leading RISC Servers *Firing Line:* Latest Server Product	**Executive Technology Summit** Tarpon Springs, Florida 2/2 - 2/4		
February		Dec. 27	CLIENT/SERVER JOURNAL	All Shows Feb. - April	Harvey	
Feb. 7	Jan. 21	Jan. 28	**Special Quarterly Report:** Re-engineering the Workplace		Starch	Mails: Feb. 9 Close: Jan. 5
Feb. 14	Jan. 28	Feb. 4	**CW Guide To: Management Tools for Large Networks** What Works When Systems are Distributed *Buyers' Satisfaction Scorecard:* Multivendor Network Management Software from DEC, HP, IBM,Sun, etc. *Firing Line:* Latest Management Package	**Networks Expo** Boston, 2/15 - 2/17		
Feb. 21	Feb. 4	Feb. 11	**Closer Look:** Windows and OS/2 Imaging Software			
Feb. 28	Feb. 11	Feb. 18	**CW Guide To: Work Flow Software** The Reality Behind the Promises *Buyers' Satisfaction Scorecard:* Leading Work Flow Software Systems *Firing Line:* Latest Work Flow Managers	**GroupWare '94** Boston, 2/28 - 3/3		
Mar. 7	Feb. 18	Feb. 25	**Closer Look:** Desktop Laser Printers		Starch	Mails: Mar. 9 Close: Jan. 14
Mar. 14	Feb. 25	Mar. 4	**CW Guide To: RAID** Choosing Among the Various Levels of Disk Array Technology *Buyers' Satisfaction Scorecard:* Leading Server-based RAID Systems *Firing Line:* Latest Mainframe RAID Subsystem			
Mar. 21	Mar. 4	Mar. 11	**Closer Look:** Unix Workstations	**UniForum** San Francisco, 3/23 - 3/25		
Mar. 28	Mar. 11	Mar. 18	**CW Guide To: Wireless Networks** The Spectrum of Technologies, Including LANs, WANs and Radio Frequency *Buyers' Satisfaction Scorecard:* Leading Wireless LANs *Firing Line:* Wireless Services Product			
Apr. 4	Mar. 18	Mar. 25	**Closer Look:** Personal Productivity Software			
Apr. 11	Mar. 25	Apr. 1	**CW Guide To: NT vs. OS/2 vs. Unix** Desktop and Server Choices *Buyers' Satisfaction Scorecard:* Leading Server Operating Systems from IBM, Microsoft, Sun, etc. *Firing Line:* Latest Desktop Operating Systems from a Leading Vendor		Starch	Mails: April 13 Close: Mar. 17
Apr. 18	Apr. 1	Apr. 8	**Management Special:** IS Architecture in Times of Change	**AIIM** New York 4/18 - 4/21 **SIM Conference** Florida, 4/20 - 4/22		
Apr. 25	Apr. 8	Apr. 15	**CW Guide To: Data Access Tools** New Tools for Quick Access to Data Buried in Older Flat-file and Hierarchical Databases *Buyers' Satisfaction Scorecard:* Leading SQL-based Data Access Tools *Firing Line:* Latest Data Access Tool from a Leading Vendor			
May		Mar. 30	CLIENT/SERVER JOURNAL	All Shows May - July	Harvey	
May 2	Apr. 15	Apr. 22	**Closer Look:** Distributed Computing Environment	**Interop + Networld** Las Vegas, 5/2 - 5/6		
May 9	Apr. 22	Apr. 29	**CW Guide To: Mobile Computing** From Notebooks to PDAs *Buyers' Satisfaction Scorecard:* Leading Notebook Computers *Firing Line:* Latest Sub-notebook Product from a Leading Vendor	**International DB2 Users Group** San Diego, 5/8 - 5/12		Mails: May 11 Close: April 14
May 16	Apr. 29	May 6	**Special Quarterly Report:** Re-engineering the Workplace		Starch	
May 23	May 6	May 13	**Windows World Open Supplement** **CW Guide To: The Impact of OLE 2.0** What OLE can do for IS and How to Make Sure Your Favorite Desktop Software Vendor is Up to Speed *Buyers' Satisfaction Scorecard:* Leading OLE Applications *Firing Line:* Latest OLE Development Tool	**Windows World** **Comdex Spring** Atlanta, 5/23 - 5/26 **DB Expo** San Francisco, 5/24 - 5/27		
May 30	May 13	May 20	**Annual Job Satisfaction Survey** How IS Professionals and Managers Really Feel About Their Jobs and Careers			
June 6	May 20	May 27	**CW Guide To: Distributed DBMS** Selecting the Right Engine for a Distributed Database Architecture *Buyers' Satisfaction Scorecard:* Leading Relational DBMS *Firing Line:* Latest Relational DBMS Product	**Computerworld Smithsonian Awards** Washington, DC		Mails: June 8 Close: May 2
June 13	May 27	June 3	**Closer Look:** AS/400		Starch	
June 20	June 3	June 10	**CW Guide To: Mainframes** How Big Iron Vendors are Answering the Challenges of the Mainframe's Changing Role *Buyers' Satisfaction Scorecard:* Leading Mainframes from Amdahl, HDS, IBM, etc. *Firing Line:* Latest Mainframe Model			
June 27	June 10	June 17	**Closer Look:** PCMCIA Cards	**PC Expo** New York, NY, 6/28 - 6/30		

Editorial contacts (508) 879-0700 CW Guide: The Guide includes a package of articles on the stated topic, in addition to Buyers' Scorecard and Firing Line
Features Editor: Joanne Kelleher, *Management Features:* Allan Alter, *Closer Look:* James Connolly, *CW Guide Articles:* Mary Brandel & Derek Slater, *Buyers' Satisfaction Scorecard:* Michael Sullivan-Trainor, *Firing Line:* Carry Ray

***Color close also applies to ads within Special Editorial Features and Premium Positions.**

WHEN A LAWYER AT GM'S HQ IN ZURICH IS WORKING ON A DOCUMENT IN CONJUNCTION WITH STAFF IN LONDON PARIS AND ANTWERP, ALL HAVE ACCESS TO THE SAME INFORMATION VIA NOTES AND WITH NOTES, ALL TEAM MEMBERS CAN CONTRIBUTE AND KEEP UP TO OATE



GM SALESPEOPLE CARRY LAPTOP COMPUTERS WITH LOTUS NOTES WHEN THEY MAKE A CALL, THEY CAN RECONNECT TO MAKE SURE THEY RE DEALING WITH THE LATEST PRODUCT INFORMATION AT THE SAME TIME ANY ISSUES THAT ARISE IN THE FIELD CAN BE COMMUNICATED THROUGH NOTES SO PEOPLE BACK AT HEADQUARTERS CAN REACT QUICKLY

To aggressively meet the challenges of competing in a "Unified Europe," General Motors Europe has streamlined, with the help of EDS, a Lotus Notes Business Partner. Central to this new structure is Lotus Notes, the vanguard of a new category of software called groupware.

GENERAL MOTORS USES NOTES TO UNIFY EUROPE. HOW BIG IS YOUR PROBLEM?

GM Europe is as large and complex as some countries. With over 100,000 people, plus 6,500 dealers, it operates across 18 languages and countless networks. With multinational divisions including Opel Vauxhall and Saab, GM boasts two of the fastest growing car lines in Europe.

Lotus Notes® unique teamwork capabilities and rich data management facilities allow GM to carry out time-sensitive contractual and developmental work by teams dispersed across the continent: To share financials. To improve manufacturing standards. To upgrade dealer service. To track market trends. And finally, to accelerate key business processes.

According to Pat Hickey, GM Europe's OIS Information Manager, "Notes is the forum for exchanging information and ideas to make us more competitive. Choosing it is one of the most popular decisions we've ever made."

Today, operations are so efficient that the entire European continent is run from a central office of just 200 people and so effective that General Motors has grown from #5 in Europe to #2 over the last few years.

Now plans are underway to get approximately 40,000 Notes users on line in the US by 1996. Evidently, what's good for General Motors Europe, is good for America.

To learn what Lotus Notes can do for your company, **call for our free video: The Executive Guide to Lotus Notes**. Or to find out about becoming a Lotus Authorized Business Partner, call **1-800-828-7086, ext. 9473***

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